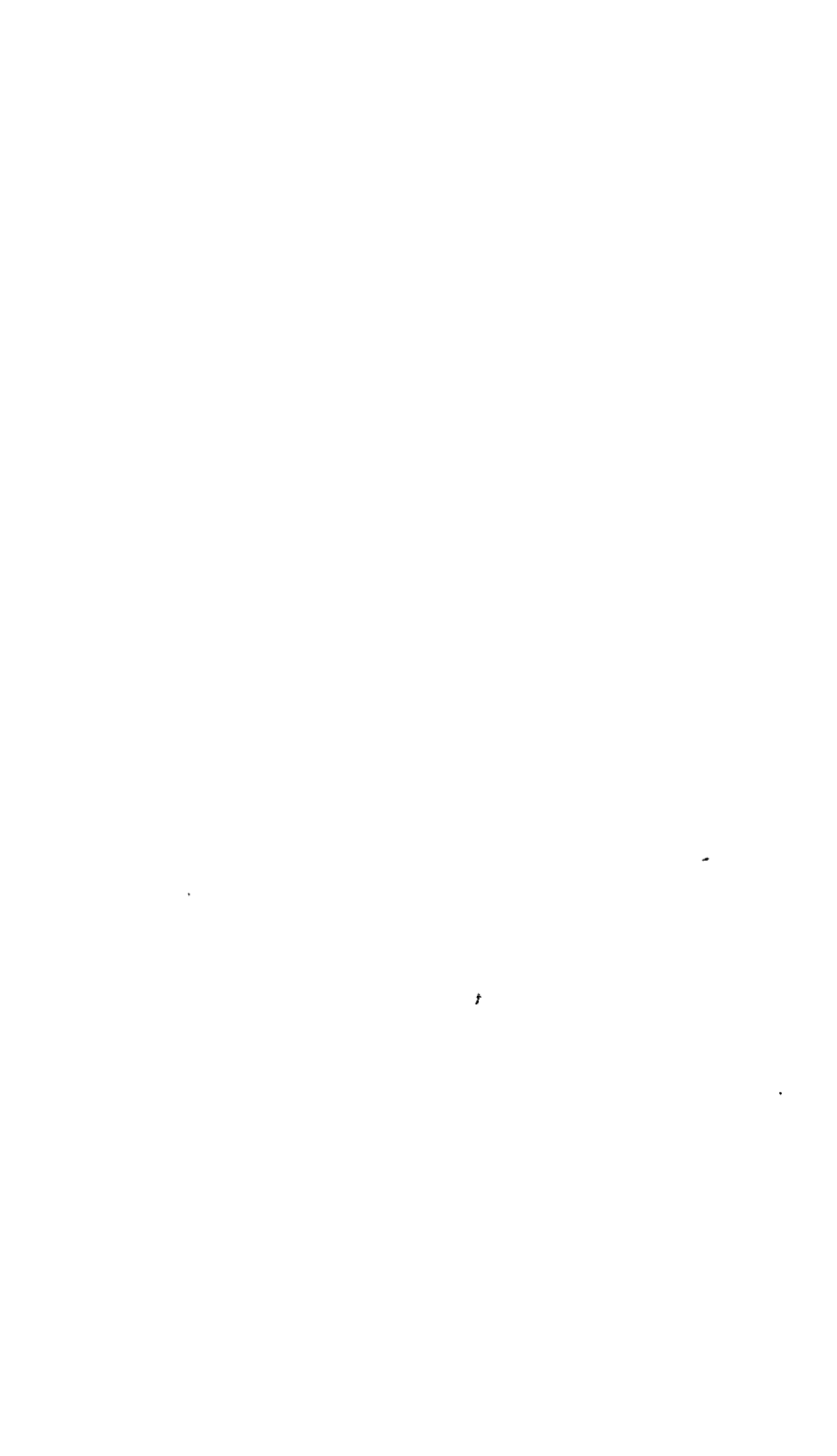


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THE
JOURNAL
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OF
GREAT BRITAIN AND IRELAND.



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CONTENTS.

	PAGE
I. On the Central South African Tribes from the South Coast to the Zambesi. By Dr. EMIL HOLUB.	2
II. Notes on the Western Regions. Translated from the "Tsëen Han Shoo," Book 96, Part 1. By A. WYLIE, Esq.	20
III. On the Origin of the Plough and Wheel-carriage. By E. B. TYLOR, Esq., F.R.S., President	74
IV. Visualised Numerals. By FRANCIS GALTON, F.R.S.	85
V. On Nicobarese Ideographs. By V. BALL, M.A., F.G.S.	103
VI. Notes on the Polynesian Race. By C. STANILAND WAKE, Esq., M.A.I.	109
VII. Further Notes on the Romano-British Cemetery at Seaford, Sussex. By F. G. HILTON PRICE, F.G.S., and JOHN E. PRICE, F.S.A., M.R.S.L.	130
VIII. Notes on Fijian Burial Customs. By the Rev. LORIMER FISON	137
IX. Flint Implements from the Valley of the Bann. By W. J. KNOWLES, Esq.	150
X. On the Cranial Characters of the Natives of the Fiji Islands. By W. H. FFLOWER, LL.D., F.R.S.	153
XI. The Ethnology of Germany. Part V. The Jutes and Fomorianians. By H. H. HOWORTH, Esq., F.S.A.	174
XII. Observations upon the Methods and Processes of Anthropometry. By Dr. PAUL TOPINARD.	212
XIII. The Japanese: People their origin, and the race as it now exists. By C. PROUNDES, Esq., M.R.S.L., &c.	225
XIV. Memoir of the late Paul Broca, Honorary Member. By E. W. BRABROOK, F.S.A., Director	242
XV. Religious Beliefs and Practices in Melanesia. By the Rev. ROBERT HENRY CODRINGTON, M.A.	261
XVI. Notes on a Stone Implement of Palæolithic Type, found in Algeria. By Sir JOHN LUBBOCK, Bart., F.R.S., M.P.	316
XVII. Camps on the Malvern Hills. By F. G. HILTON PRICE, Esq., F.G.S., Treasury.	319
XVIII. Land Tenure in Fiji. By the Rev. LORIMER FISON, M.A.	332
XIX. Notes on the Occurrence of Stone Implements in South Russia. By WILLIAM D. GOOCH, Esq., C.E.	352
XX. On Anthropological Colour Phenomena in Belgium and elsewhere. By Dr. JOHN BEDDOE, F.R.S.	374

	PAGE
XXI. Certain Reasons for believing that the Art of Music in Prehistoric Times passed through Three Distinct Stages of Development, each characterized by the Invention of a New Form of Instrument, and that these stages invariably succeeded one another in the same order in various parts of the World. By MR. ROWBOTHAM ..	380
XXII. The Stone Age in Japan; with Notes on Recent Geological Changes which have taken place. By JOHN MILNE, F.G.S.	389
XXIII. Neolithic Flint Implements of the Nile Valley and Egypt. By R. P. GREG, F.G.S., F.S.A.	424
Proceedings of Annual General Meeting	433
President's Anniversary Address	440

ANTHROPOLOGICAL MISCELLANEA.

Stature of the Andamanese. By W. H. FLOWER, F.R.S.	124
Chastleton Camp, Moreton-in-Marsh. By JOHN E. PRICE, F.S.A. ..	124
The Alleged Existence of Scythe Chariots in Ancient Britain. By J. JEREMIAH, M.A.S., and E. B. TYLOR, F.R.S., President ..	127
Necrology	231
Recent Literature. "Catalogue of the Specimens Illustrating the Osteology and Dentition of Vertebrated Animals, recent and extinct, contained in the Museum of the Royal College of Surgeons of England." By W. H. FLOWER. Part I. Man: <i>Homo sapiens</i> , Linn (1879).	231
"Early Man in Britain, and his place in the Tertiary Period." By W. BOYD DAWKINS, M.A., F.R.S., F.G.S., F.S.A.	232
"Fossil Men and their Modern Representatives." By J. W. DAWSON, LL.D., F.R.S., F.G.S., &c.	234
"Folk-Lore, Manners, Customs, and Languages of the South Australian Aborigines, gathered from inquiries made by authority of the South Australian Government. Edited by the late Rev. G. TAPLIN, of Point Macleay. 1879	234
"Die Ethnographisch-Anthropologische Abtheilung des Museum Godeffroy in Hamburg." Ein Beitrag zur Kunde der Lüdsee-Völker von J. D. E. SCHMELTZ und Dr. med. R. KRAUSE, Hamburgg	236
"Who are the Scotch?" By JAMES BONWICK, F.R.S.	237
"Manual de Voyageur." By D. KALTBRUNNER, 1879	237
"Aide Mémoire du Voyageur 1861	237
An Absaroka Myth. By W. J. HOFFMAN, M.D.	239
Notes on Prehistoric Discoveries in Central Asia. By C. H. E. CAR-MICHAEL, Esq, F.R.S.L... .. .	358

CONTENTS.

v

	PAGE
On Jade Implements found in Switzerland. HODDER M. WERTROPP	
Esq.	359
"Smithsonian Contributions to Knowledge." Vol. XXII.	363
"Contributions to the History of the Development of the Human Race.	
By DAVID ASHER, Ph.D.	366
A Horned African Family	459
Bushman Cave Paintings and Stone Implements	459
Strange Funeral Ceremony in the Tonga Islands, South Sea	460
The International Congress of Prehistoric Archæology and Anthropology	
at Lisbon	461
Notes on the People of Batanga. By W. L. DISTANT	462
<hr/>	
Index	471



LIST OF ILLUSTRATIONS

PLATES.

	PAGE
Frontispiece. Portrait of Dr. Paul Broca.	
I. Koranna Huts in the Harts River Valley	8
II. Koranna Huts	8
III. Batlapin Men when travelling	14
IV. Batlapin Boys throwing the Kiri	14
V. Barolong Men on the Konana River hunting Zebras	14
VI. Primitive Agricultural Implements	76
VII, VIII. Visualised Numerals	96
IX. Nicobarese Picture Writing	103
X. Seaford, Sussex. Map, Section in Cemetery and Plan of Cuttings	130
XI. Seaford, Sussex. Pottery and Stone Implement ..	134
XII, XIII, XIV. Crania of Fijians	156
Map of Melanesia	261
XV. Plan and Sections of Herefordshire Beacon Camp ..	318
XVI. Stone Implements of Palæolithic Type, found in Algeria	318
XVII. Japanese Pottery	392
XVIII. Stone Implements from Japan	395

WOODCUTS.

Shape of Stone used for Building by extinct tribe in South Africa ..	4
Barolong Girl gathering Locusts	14
Batlapin Men working a carosse	16
Medical Man of the Barutse	18
Ancient Egyptian Plough	77
Various ancient forms of the Plough	78
Plough used in the time of Pliny	79
Ox-wagon from the Antonine Column	80

	PAGE
Bullock cart of the Azores	80
Visualised Numerals	89
Ditto	90
Ditto	91
Artificial Cave used for burial by the Fijians	144
Section of Cuttings made in Hollybush Camp	321
Inscribed Sandstone from Herefordshire Beacon Camp	325
Stone Implements found in South Russia	355
Delta of River Tamagawa	419

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FEBRUARY 10TH, 1880.

FRANCIS GALTON, Esq., F.R.S., *Vice-President, in the Chair.*

The minutes of the last meeting were read and confirmed.

The Election of the following new Members was announced :
THOMAS HODGKIN, Esq. ; ALFRED TUCKER, Esq. ; H. C. STEPHENS,
Esq. ; J. A. FARRER, Esq. ; B. M. WRIGHT, Esq. ; T. W. A.
ROBINSON, Esq. ; and W. D. GOOCH, Esq.

The following presents were announced, and thanks voted to
the respective donors :—

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From the EDITOR.—“Nature,” Nos 533–36.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1417–20.

From the EDITOR.—Revue Scientifique, Nos. 29–32.

From Dr. BROCA.—Revue d’Anthropologie, No. 1, 1880.

From the EDITOR.—Archiv für Anthropologie, Nov., 1879.

From Dr. BARNARD DAVIS.—Selci lavorate, bronzi e monumenti di
tipo preistorico di Terra d’Otranto. Per Giustiniano Nicolucci.

From A. R. THOMPSON, Esq.—Account of the Natives of Western
Australia.

————— Report upon the Aborigines of Western Australia,
by Dr. Milne Robertson.

From Dr. E. JARVIS.—Circulars of Information of the Bureau of
Education (U.S.), No. 3, 1879.

From the SOCIETY.—Journal of the Royal Asiatic Society, Vol. XII,
Part I.

- From the ACADEMY.—Boletín de la Academia Nacional de Ciencias de la República Argentina. Tomo III, Entrega 1.
- From the EDITOR.—Revue Internationale, No. 1, 1880.
- From the AUTHOR.—The Method of Manufacturing Pottery and Baskets among the Indians of Southern California. By Paul Schumacher.
- From the SOCIETY.—Bulletin de la Société Impériale des Naturalistes de Moscou, 1879, No. 2, Proceedings Vol. XXXVIII, Part 2.
- From the SOCIETY.—Achtzehnter Bericht der Oberhessischen Gesellschaft für Natur und Heilkunde, Nov., 1879.
- From Professor AGASSIZ.—Bulletin of the Museum of Comparative Zoology at Harvard College, Vol. V, Nos. 15, 16.
- Annual Report of the Curator of the Museum of Comparative Zoology at Harvard College, 1878–9.
- From the SOCIETY.—Proceedings of the Royal Society, No. 199.
- From the ACADEMY.—Sitzungsberichte der Kaiserlichen Academie der Wissenschaften.
- Philos-histor, classe. Band 90, Heft. 1, 2, 3. Band 91, Heft 1, 2. Band 92, Heft. 1, 2, 3. Band 93, Heft. 1, 2, 3, 4. Register 81–90.
- Math-naturw. classe 1878. I. Abtheilung, Nos. 5–10. II. Abtheilung, Nos. 4–10. III. Abtheilung, Nos. 1–10, 1879. II. Abtheilung, Nos. 1–3. III. Abtheilung, Nos. 1–5.
- Almanack, 1879.
- From the ASSOCIATION.—Report of the forty-ninth Meeting of the British Association. Sheffield, 1879.
- From the SOCIETY.—Proceedings of the Royal Geographical Society. Vol. II, No. 2.
- From the AUTHOR.—Who are the Irish? By James Bonwick, F.R.G.S.
- From the SOCIETY.—Journal of the Asiatic Society of Bengal, Vol. XLVIII. Nos. 228, 229. Proceedings, August, 1879.
- From the ASSOCIATION.—Proceedings of the Geologists' Association, Vol. VI, No. 4.

The following paper was read by the Author:—

On the CENTRAL SOUTH AFRICAN TRIBES from the SOUTH COAST to the ZAMBESI. By Dr. EMIL HOLUB.

IN the following paper I propose to describe some of the results of my ethnological researches during a sojourn both in the colonies and the southern parts of Central Africa.

Of the tribes living between the coast and the Zambesi, I divided these researches into two parts: the first relating to South Africa, and the second to Central Africa. I did not visit either the east or the west coast. When a traveller visits the interior it is only natural that he should make

acquaintances among the natives. He must enter their villages and obtain permission from the kings to pass through their countries; he must buy food from the people, and employ them as servants. It has been the custom for every traveller to give some kind of description of the tribes and countries which he visited, but I believe the public generally, as well as scientific men, are, at present, not satisfied with a mere list of names of tribes and countries, and a description of some of their most interesting customs; therefore, in order to obtain some satisfactory information concerning them, it is necessary that a traveller should live for months, or even years, among the natives. He must study their language, to some extent at least, notice their customs, and see how they deal with one another, with other tribes, and with white men. I thought it would not do for me to go at once into regions between the Vaal, the Limpopo, and the Zambesi, which are not yet in any way civilised; but that I should first become acquainted with the tribes living among the white men, so that I might afterwards be able to notice the difference between those who enjoy the benefits of civilisation and those who do not, and then draw my own conclusions.

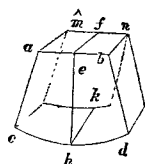
I went to South Africa without any prejudice for or against the natives. I had learned something about them from Dr. Livingstone's book, but otherwise I was in entire ignorance regarding them. In the Diamond Fields I practised as a medical man, in order to obtain the means for prosecuting my travels and explorations. I saw how the natives behaved as servants, and how the English and Dutch dealt with them. Then I endeavoured to ascertain if there was any connection between those tribes and others further inland. When I visited the interior I entered the villages professionally, and in this way I was successful in gaining the confidence of the natives. I am proud to say that I was thus enabled to observe what many other travellers could not, namely, how the natives appeared in their private lives; in fact, I could see, as it were, behind the curtain. The result was that, certainly against my own will, I have had to upset certain opinions which have been formed about the natives.

I divide my subject into two sections: the first concerns the tribes of whom I found traces, but who are not now in existence; and the second section relates to living tribes. The non-existing tribes I again divide into two branches.

Along the south coast I found traces of tribes which do not now exist there, such as heaps of burnt bones of wild animals, none of domestic animals, and broken shells. These heaps are often 6 feet high, having a circumference of from 40 to 60 feet. When able to dig up some of their implements, we shall, I suppose, find some relationship between those past tribes and

the one which still up to the present time exists (living upon fish and mussels) in the rocks and caves of the Portuguese settlement on the west coast of Africa. I conclude, therefore, that those heaps were formed by a race which stood very low indeed, but in order to obtain complete information on the subject, it would be necessary to spend three or four months in investigation and in digging the mounds; I could not then spare the time, but I hope to be able to do so during my next journey.

The second group of non-existing tribes belonged to the regions between the Limpopo and the Zambesi. I found there ruins of locations. It is very well known that two hundred years ago there was an empire in Central Africa, with which the Dutch and Portuguese traders were well acquainted. We also know that there were provinces called Motapa or Monopotapa, but that is all the information we have about them. I am not sure that the ruins I saw belonged to this extinct race, but I believe so; they were generally in the vicinity of mines, especially gold mines. They were of stone, on the tops of mountains, put together without any cement, but so well fitted together that they have stood for hundreds of years. Some of the ruins were formed of blocks of granite in the shape of large bricks. The tops of small hills were



$a\ b$, 3 to 5 }
 $c\ d$, 8 to 10 } inches long.
 $e\ f$, 2-3 }

$k\ l$, a little higher than $e\ f$.

$a\ m\ n\ b$ was the inside, towards the interior of the round and elliptical shaped ruinous part.

in this way fortified, with openings in the walls. I am not certain that these remains belonged to those who inhabited the Empire of Monopotapa, but I am sure that they belong to no tribe that is at present found in South Africa. I think that some of the stone work was made complete by a wooden fence erected on the top of it. Exploration of these ruins would, I feel confident, be amply rewarded. When I saw them I was too ill with fever to do more than make sketches.

From what I observed of the wars that have been carried on between the different tribes during the last few years, I come to the conclusion that whole tribes have been exterminated in South Africa. When a country is conquered it is the custom to kill all the male population, take the women and children prisoners, and educate the latter as warriors for the victorious tribe, or enslave them. In this way whole tribes have ceased

to exist. We know that Livingstone mentions a powerful tribe of the Basutos on the Upper Zambesi, named the Makololo, but if we now visit those parts we find that the only representatives of that tribe are women and children, and one man. The latter was spared because the daughter of the king took a liking to him, but all the other male adults have been killed. These wars cause a great many difficulties to the anthropologist because the races become mixed.

Between the Limpopo and the Zambesi we find ten different tribes mixed with the Zulu race, and a gentleman going among them in order to make anthropological researches would see many things that would astonish him. The men of ten tribes who formerly lived in the vicinity have been killed; and the women and children having been captured, a new Zulu population has been created.

The living tribes I divide according to their language and external appearance into three races—I do not consider that the customs are sufficiently distinctive to enable me to make the division. First, there are the Bushmen; secondly, the Hottentots; and thirdly, the Banthu. I found a link between the Bushmen and the South African Banthu family, and between the Bushmen and the Central African, but not between the Hottentots and the Banthu.

I will speak first of the Bushmen. The Bushmen inhabiting the eastern parts of the colony and a small portion of the Orange Free State belong to the pure race of Bushmen, which had been described before I ever entered South Africa. As is well known, the Bushmen are rapidly dying out. The reason of this is, that their great characteristic is a love of liberty and fondness for living in mountains. They have been accustomed to live among the hills and descend into the valleys to shoot game with poisoned arrows. When the Dutch came into South Africa and killed the game, they thought that the Bushmen would come down and work as servants, but instead of doing so they took refuge in their mountains, and when the game disappeared they shot the cattle of the Dutch settlers. The result was that the Dutch treated them rather severely, shooting them down like dogs. In this way thousands of Bushmen were slain, and not more than about two per cent. of the number existing a hundred years ago are now alive. Even those few Bushmen who at present are working as servants for farmers long to get away to the mountains, and I saw some who had been living for about fifteen years with farmers, but who had run away more than thirty times. I did not notice any evidences of a religion among these Bushmen. I only know that they have a kind of esteem for a certain snake. With regard to their clothing, it is

well known that a Bushman, when living in his mountains, uses only a piece of skin, or ostrich egg-shells formed into a small piece of cloth. His houses are caves high up in the crevices of the mountains. They use stone weapons and poisoned arrows, but the bows and arrows are of very simple construction when compared with those in use among the natives of North and South America and Japan. A piece of wood forming a cross-bow is connected by a sinew of an animal, and the arrow is poisoned. The arrow-head is generally made of bone and ivory, it is fastened to a thin piece of reed about $1\frac{1}{2}$ feet long, and the poison is obtained from bulbs, euphorbias, etc. They make stone implements of a very simple kind, and they sharpen their arrows on stones. They also have stones with a hole in the centre, through which they put a stick, and with this implement dig out the roots and bulbs which form their principal food. Thus in every way this race, which is dying out, appears very low in the scale of civilisation. But, strange to say, these Bushmen, who are regarded as the lowest types of Africans, in one thing excel all the other South African tribes whose acquaintance I made between the south coast and 10° south latitude. I have in my possession about two hundred sketches on wood and stone and ostrich shells, by various tribes, but everyone who knows anything about drawing must acknowledge that those which were done by Bushmen are superior to any of the others. They draw heads of gazelles, elephants, and hippopotami astonishingly well. They sketch them in their caves and paint them with ochre, or chisel them out in rocks with stone implements, and on the tops of mountains we may see representations of all the animals which have lived in those parts in former times. In many spots where hippopotami are now unknown, I found beautiful sketches of those animals, and in some cases fights between other native races and Bushmen are represented. From what I have said you may imagine that the efforts made to civilise the South African Bushmen have not produced any result commensurate with the trouble that has been taken. Mr. George Stow, the well-known South African geologist, made many valuable discoveries concerning the Bushmen and numerous drawings of their engravings on mountain-tops and painting in caves.

The second race are the well-known Hottentots. The Hottentot race inhabiting the southern parts of South Africa is divided into three tribes: the real Hottentots, the Griquas, and the Korannas. The real Hottentots we find in the western and south-eastern part of the colony. The Griquas inhabit the district near the junction of the Vaal and the Orange River, the so-called province of Griqualand West, and another region between Kaffraria and Basuto land, called No Man's Land.

At present the Hottentots, the Griquas, and half the number of the Korannas are subject to the English Government.

The Korannas, the third Hottentot tribe, live on the Vaal River as subjects of Griqualand West. We also find them on the Central Harts River living in a small independent kingdom, where they are known as the Korannas of Mamusa; their king is the son of Old Mashou (David Taaibosh), and in a north-westerly direction with their chief Shebor, as subjects of the Baralongs, a Betchuana tribe. If we look at this race what can we say of them? If I attempted to enter into details with regard to their religion, government, customs, agriculture, etc., I should occupy the whole evening, even if I confined my remarks to only two tribes. You will therefore excuse me if I only give a brief outline of all the tribes. When I spoke on this subject a few months ago, I had to acknowledge a very sad thing—that these tribes are dying out, but at the present time I hope that it will not be so any more; so with the Griquas and the Korannas. About the Hottentots, however, I cannot give such a good account. Of all the South African tribes the most numerous are those belonging to the Banthu family, but of the whole number, about forty, I know of none who have taken so eagerly to the vices of civilisation as the Hottentot race. The Betchuanas observe some of the virtues of the white man, but unfortunately the Hottentots adopt only his vices. Drunkenness is the chief cause of their dying out. About two years ago I was requested to write a few words on the “native question in South Africa.” I stated that I believed it was absolutely necessary to stop the importation of intoxicating drinks. I suppose the suggestion was at that time regarded as a little too premature, because being a young man, of course I could not have formed a proper opinion; but I am very happy to say that now my friends in Griqualand West have come to the conclusion that it is necessary to have such a law in order to stop the increase of crime amongst those tribes of whom the Korannas were formerly the chief. Among those tribes I did not observe any sign of religion; but they have among themselves a kind of freemasonry. Some of them have on their chest three cuts. When they were asked what was the reason of it they generally refused to answer; but after gaining their confidence they confessed that they belonged to something like a secret society, and they said, “I can go through all the valleys inhabited by Korannas and by Griquas, and wherever I go, when I open my coat and show these three cuts I am sure to be well received.”

The members of the society are initiated in this way. If a Koranna man who possesses cattle wishes to become a member

of the society he goes to a member and tells him what he desires. That man gives information to his neighbours, if they are also members of the society, and they assemble in the house of the man who is about to become a member. The candidate has to bring a large number of oxen and sheep, which are slaughtered and eaten. In former times they used to drink their home-made beer, but lately they used brandy. For about four days the festivities are kept up, then the cutting is made upon his chest, and from that time the man is recognised as a member of the family, and may travel wherever he likes, and be taken care of, though perhaps he has only a stick with him.

Notwithstanding that these tribes have been living for hundreds of years among white men, they have obtained no benefit whatever from that circumstance. Nothing more sad could be imagined than one of those Koranna villages, which are generally built upon bare mountain ranges. The form of the huts is shown in the accompanying illustration.* They measure $1\frac{1}{2}$ meters high by $3\frac{1}{2}$ meters long.

They make a few holes in the ground, forming a circle, and in those holes they fasten a few sticks—branches of trees, which they do not take any trouble to clear of the knots or anything else. These branches are stuck in the ground, and the points are fastened together, so that the whole affair has the appearance as shown in the illustration (Plate II). Then they cover this wood-skeleton with mats made of straw or rushes. They leave a low opening generally from the wind, and the hut is ready. There is no enclosure around it. The huts were made in the same way two hundred years ago.

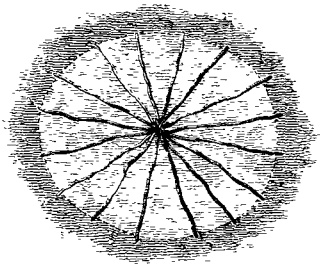
In the centre of such a hut we find a small place about 2 feet in diameter, excavated like a ditch. In this hole they burn their wood and put their meat into the ash. In that way they prepare their meals. The family is generally clothed in European rags. They sit around, and the paterfamilias has a knife in his hand which he continually pokes into the piece of meat, pulls it out and smells it to see if the meat is "done." They have not now any remarkable national costume.

Among the Korannas and Hottentots I gathered only a very few curiosities. It seemed to me as though they had lost their former skill. I am sure they used to make weapons, and pots, and other things, but at the present time they make nothing except pipes. I saw some pipes very well made out of stone. They have learned to make these pipes from the Dutchmen who

* The Institute is indebted to Dr. E. Holub for the presentation of the plates which accompany his Paper. They are from electrotypes of illustrations printed in his valuable work "Seven Years in South Africa," and have been prepared for the Author by the permission of Messrs. Sampson Low and Marston, the English publishers of the book.

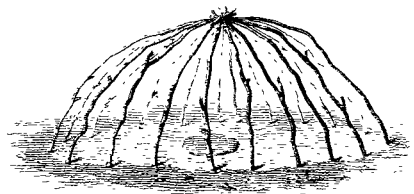


KORANNA HUTS IN THE HARTS RIVER VALLEY. BARWA SERVANTS HOMEWARD BOUND FOR THE HUTS OF THEIR KORANNA MASTERS.



1

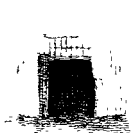
View from top



2

Side view

framework of Koranna Huts



3



4

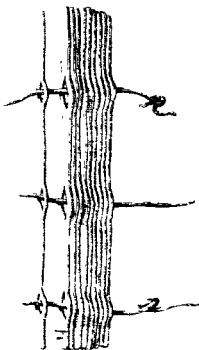


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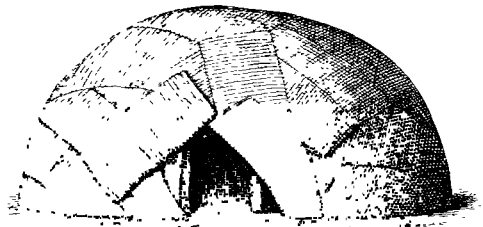
6

Entrances to Huts



7

Rush Mat
for covering framework



8

Koranna Hut complete

KORANNA HUTS.

make them on their farms. These were all the specimens of workmanship, but now that no more brandy is to be introduced among the Korannas I hope that a great change will take place; we may hope it will be extended upon the Griquas and Hottentots. These tribes inhabit parts of South Africa which are very well adapted to the breeding of cattle, and therefore I advised that the villages of the Korannas should be under certain supervision; that a constable should visit them about once a week, and see that they were kept clean, and that the Korannas did their work. The old Korannas appear to be just like children—seduced by everything that glittered and looked nice. Therefore I believe if they were properly led something might be made of them; but the sale of brandy must be stopped. I am sorry that I have but very little to say about the progress which they have made during the last score of years.

To finish our subject, even if in a few outlines only, I am obliged to leave already now the second section and pass over to the third race, which occupies by far the greatest portion of South Africa and belongs to the Banthu family. This race divides itself into many distinct tribes. Some of the tribes speak different dialects from the others, and cannot be understood by them. There is also a great difference in the external appearance of the different tribes; so that it was almost difficult to believe that they belonged to one and the same race. To this Banthu family I consider the Basutos belong, who live on the banks of the Caledon river, also the different tribes of Colonial Kaffirs living in the eastern part of the colony, the Zulus in Zululand proper and between the Limpopo and the Zambesi, the Betchuanas living in the Transvaal and in the centre of South Africa, the Makalakas between the Betchuanas kingdoms and the Matabele, and the Makalahari in the central portion of South Africa in the Kalahar country, and further the Manansa, the tribes north of the Zambesi, etc. Between these we find a tribe called the Masarwas in the northern part of the country towards the Zambesi, and called Barwas in the southern parts of the Betchuana countries, which I consider to be a link between the Bushmen and the Banthu family. The different tribes belonging to this race live partly as subjects to the British Government and the Orange Free State, and partly in independent empires or kingdoms. The Makalahari occupy the lowest position among the Betchuanas, being slaves to them like the Masarwas, Barwas, and Madenassana.

The Betchuanas who live between the Orange River and the Zambesi as our subjects or as belonging to the six independent kingdoms, confess that when they came into those parts they found the Makalahari, Barwas, and Masarwas there. They con-

quered the Makalahari and made them slaves. These Makalahari have to live in the more western parts, where game is plentiful, and have to kill the game and bring the spoil to their masters, who live in parts where water is more abundant. The Makalahari are the lowest of all the races belonging to the Banthu family. They live generally in small huts made of grass. A few sticks are driven into the ground and are covered with grass. They are employed either as hunters or as herdsmen to look after the cattle of the Betchuanas. By the Betchuanas they are considered as human beings, but not so the Masarwa. If a Makalahari servant behaves well and kills a good many ostriches for his master he is allowed to marry a Betchuana woman, but such a thing is never permitted to the Masarwa. A Masarwa and a Barwa man who is a servant to a Betchuana is not allowed to enter the town of the Betchuana king during the day-time, and has to wait outside, and can only go in after sunset. Among the Makalahari I did not observe any signs of religious ideas, but I noticed that the Masarwas believe in fetishes. They have pieces of bone which they carry about to give them strength, and make them good hunters, or heal them of diseases, etc. The Makalahari are a reddish-brown race, so that they have been called by some travellers Red Kaffirs.

From the Makalahari I turn at once to their masters. The Betchuanas live as British subjects, and not as Batlapins, in Griqualand West, and near the junction of the Harts River, under their chief Jantshe (jantje), and also as British subjects under their chiefs Mora and Gassibone. The most southern of the Betchuana tribes live as subjects to Griqualand West, but they also form a small independent kingdom, ruled over by a king called Mankuruane. Next to these we find a Betchuana tribe called the Barolongs, next to them the Banquaketse, next to them the Bakwena, and next to them the Bamangwato, eastern and western. With regard to their appearance, the Eastern Bamangwato and the four most southerly tribes seem to be most similar, but there is a great difference between the eastern and the western Bamangwato or Batowana. The eastern are brown; the western are quite black. The language which they speak is Betchuana. There are only three dialects, hardly worthy of notice. The Betchuanas employed themselves formerly as hunters and agriculturists, but at present, as no more guns and ammunition are introduced into their country, they are obliged to turn their attention almost entirely to agriculture. I regard the abolition of the sale of guns and ammunition to the natives as the best thing that could have been done, and as a great blessing to those tribes. The Betchuanas are peaceful tribes, but lately, like the Basutos who were also formerly peaceful, they have grown warlike. During the last fifteen years they have become so,

until they considered themselves equal to the white men. We have had a very severe dispute with one of these tribes. That would never have happened had they not been possessed of ammunition. This suppression of the supply of guns and ammunition to the natives has improved them in many ways. It improves the social position of the women. We know very well that the little agriculture that has been carried out among the Betchuanas has been done by the women, and the men were accustomed to buy two or three women simply to plant Indian and African corn sufficient to supply their households while they themselves employed their time in killing elephants or ostriches, and selling the tusks and feathers to traders, and lying otherwise idle. With the proceeds of the sale they bought more ammunition or European clothing. Some of them have attempted to imitate our houses, and I was very pleased to see it. Now, although no more ammunition is supplied to them, they cannot leave off using European clothing, and they have to try and gain in a different way the means of buying those things. They are therefore obliged to take to agriculture. Some of the tribes among whom ploughs were introduced became rich. I know one Betchuana tribe, called the Baharutse, from which all the present Betchuana tribes have risen by sub-deviation (banding off) with about eight hundred paterfamilias households, which has two hundred ploughs. When the village grows rich the other tribes see that the men can build small cottages and other necessary things, and they like to imitate them. But among the Betchuanas the men never allow the women to touch their cattle. The ploughs cannot be used except by the help of cattle, and therefore the men have now to do the heavy work. They plant not merely what they need for their households but in order to sell the produce, and I saw loads of Indian corn and wheat coming down to the Diamond Fields to be sold by the Baharutse. If we can turn the Betchuana tribes, of whom the greater part have been hitherto idle hunters, into peaceful agriculturists, I am sure that their example will spread among the other tribes, and it will be a great blessing for South Africa. I remember that during my last stay in the Diamond Fields I paid no less than £3 for a bag of Indian corn weighing 2 cwt. for my horses. In Port Elizabeth such a bag could be had for 5s. coming from America. But if all the tribes imitate the Baharutse and cultivate corn there will be no need to import corn at all into South Africa. I believe that they could even export some, and therefore I took the liberty to advise to make presents of ploughs to a few of the chiefs. I am sure if this were done agriculture would rapidly spread among the natives. We wish to live in peace with these

native tribes, but in order to do that they must cease to be hunters and warriors; they must be peaceful.

I have said that of these different tribes the most southern are the Batlapins, Ba and Tlapi, *id est*, the men of the fish, the people who esteem a fish. When the tribes belonging to the Banthu family are close neighbours to the Hottentots, as such they are generally misled by the latter, and so we find that the Batlapins became very bad in their habits. They were so given to drunkenness that whole families died of hunger, because when a trader arrived there with brandy, they would give him the very last sheep they had got for it. When brandy and similar articles are prohibited, we may hope that these Batlapins also will change for the better; the more so because these men are living near the Diamond Fields, where they can sell their grain, wood, cattle, reeds for thatching houses, etc., for very good prices. In this way they may greatly profit by the new laws.

To the north of the Batlapins we find the Barolongs, a tribe headed by a man named Montsie or Montsua. A long time ago he prohibited the sale of intoxicating liquors. These people are chiefly engaged in agriculture. In his kingdom I saw some Korannas staying with a chief of the name of Shebor, in the town of Konana. To the north of the Barolongs we find the Banguaketse, who were formerly hunters, but within the last two years they have taken a little more pains with agriculture. In that country we see two more tribes. To the east, near the ruins of the town of Kolobeng, described by Livingstone, we find the Manupi, and to the west the Baharutse, living in Moshaneng, the same tribe as the Baharutse, living in the town of Linokana in the district Marico.

To the north of the Banguaketse we find a tribe of the Bakwena chiefly engaged in hunting, and in their kingdom we find several Betchuana tribes like the Makhosi, Bakhatla, Batloka. About two years ago this tribe had to suffer from famine, and this is another reason why I consider it a very wise measure so stop the supplies of arms to the interior. During the last few years the game have been so exterminated between the Zambesi and the Orange River that really a traveller might go right up to the Zambesi, and unless he was a very good shot and had splendid horses he might starve, although a few years ago game was exceedingly plentiful. It is true that many of the people complained that we did not bring any more ammunition, because the ivory and the ostrich feather trade has decreased to a considerable extent. But if the elephant had continued to be hunted so continuously, all the elephants would sooner or later have been extirpated, and then the whole trade in ivory would have come to a standstill. Now is the time, when the natives

have no guns and ammunition, to show them that there is a better use for these animals than killing them. It is better to tame the elephants and breed ostriches, as is done with the latter in the southern part of Africa. When elephants carry our goods, the cost of transport will be much less than it is at present by bullock wagons, because occasionally a distance of 70 or more miles has to be traversed without water; further, they will turn very useful to traverse countries infested by the Tsetse fly. When the crops fail and otherwise there would be a famine, tame elephants or tame ostriches may be turned into ready money; but if they kill the last head of game, where can they take refuge? They will become a burden to other tribes and to their white neighbours.

Farther to the north are the Bamangwato tribes. These are hunters, and to a small extent agriculturists, and under the régime of the present King Khama, they promise to become the foremost of the Betchuana tribes. I never saw a native king do so much to abolish the native customs. He takes the greatest precautions that no brandy shall be brought into his kingdom, and does his best to abolish the old customs that have been existing for many years in the Bamangwato country. He has always proved a good friend to Englishmen, and punishes in a very severe manner any insult to a white man. He has certain rules by which cases are decided. If it is proved that a native has stolen anything from a white man, he orders him to repay double. If, for instance, he steals an ox, he must pay back one extra for having deprived the white man of it for two or three days.

The second Bamangwato tribes differ from these, inasmuch as they are more fishers than agriculturists. They fish especially in the Zooga River and in the Lake N'Game water and its tributaries. Altogether they have more similarity with the tribes living to the north. In the eastern Bamangwato country we have altogether six tribes, the real Bamangwato, and then the Makalakas, as refugees from Matabela land, who have been residing in the town of Shoshong in large numbers. They have behaved badly, having taken both sides in the contest between Sekhomo and his son Khama. Besides these we find the Madenassena, a native tribe with very dark skin. Their language has a similarity to that of the Masarwas, and therefore with that of the Bushmen. Besides the Masarwas, which are a link between the Banthu and the Bushmen, we find a tribe near the Victoria Falls called the Manansa. At present there are only a few villages there, but up to 1837 they formed a large kingdom, which was destroyed by Moselikatse. The Manansa are a very peaceful tribe, and are entirely different from the Betchuanas, notwithstanding that they belong to the Banthu

family. In their language and their customs also there is a great difference. The Betchuanas regard their women only as slaves, but since ploughs have been introduced the women have gained more respect, and their work is confined more to the homes. Whites who have lived among them notice that those who have been instructed by missionaries and have been baptized, treat their wives better than they used to; still, I saw many Christian women doing the hardest work. The introduction of ploughs has improved the position of the women among the Betchuanas, as it was always the case among the Manansas. In former times they were splendid agriculturists, and it was their pride to be peaceful. They hated to fight, and they killed their game in traps or holes in the ground. When the Matabele came into their country the Manansas threw their assegais to the ground and said, "We do not want to fight, come into our houses." The Matabele said, "There is something wrong, they only say

Fig. 1.



this that they may have time to gather more strength"; and that same day they threw the king of the Manansas to the



BATHAPIN MEN WHEN TRAVELLING.



BAHOLONG MEN ON THE KONANA RIVER HUNTING ZEBRAS.

ground, tore open his bowels, and put his heart on his lips, saying, "You are a false man; you have two hearts." Though the country near the Victoria Falls is very beautiful, we find only a few Manansas. At the present time, when the Matabele come into their land, the Manansas run as far as possible to the west and say, "We are subjects of the Bamangwato," but when they are pressed by the Bamangwato, they go to the east and say, "We are subjects of the King of the Matabele." They do this because they do not care to fight. They are looked upon by the other South African tribes with great disdain, as cowards; but I may say that of all the natives that I had with me as servants—Zulus, Hottentots, Betchuanas, Korannas—I never had such useful men as these Manansas. I collected about three hundred words and phrases from their language. So much for the independent Betchuana Empires.

The illustrations represent scenes from the life of the Betchuana; they are drawings from the book of my wanderings in South Africa. Fig. 1 in text represents a Barolong girl from the vicinity of Morokana, gathering locusts; fig. 2, Batlapin men working a carosse (mantlet made of antelope-skins). Plate III, Batlapin men when travelling; Plate IV, Batlapin boys throwing the Kiri; and Plate V, Barolong men living on the Konana river hunting zebras.

Next to the Manansas we have the Makalakas belonging to the Banthu family, but their language is very different from that of the Betchuanas. These Makalakas were living under several kings, and are the real agriculturists among the natives of South Africa. They were very peaceful, and as agriculturists and cattle breeders really excelled. They were living on the border of a very peaceful kingdom, inhabited by natives called Mashonas. In their workmanship, in their cotton gardens, and in their working of ivory and metals these Mashonas surpass all the other South African tribes. These two peaceful kingdoms bordered one on the other; but from the south there came what I would call a bird of prey, and destroyed for ever the peace and welfare of these tribes. The man who did so was a Zulu, and we know that a Zulu chief named Moselikatze settled down in the district where were residing the peaceful Makalakas. He came there, being beaten by the Dutch; he retired into these parts on the banks of the left-hand tributaries of the Limpopo. When he came there, he had only forty Zulu warriors and some Betchuana slaves left, and a few head of cattle; but at the present time the Zulu kingdom of the Matabeli reaches nearly from the Zambesi to the Limpopo, extending nearly four hundred miles from west to east, and is continually growing. When he first arrived he remained for some time in the forest, and then at night set fire to the huts

of the natives ; the men ran out, and as they did so were killed by the Zulus. The women and children were taken possession of, and the result was that the peaceful Makalakas recognised the Zulus as their masters. Moselikatse's kingdom increased towards the east and north-west, and he was continually enlarging his power. After I had seen the doings of the Matabele, I took the liberty, when I came down to South Africa, to publish accounts of them,

Fig. 2.



but this was disliked by a few white men who lived in the residence of the king and who did not like my publishing it. Quite recently I heard more on the subject, and will have to deal with this matter more minutely. These Makalakas live in several small tribes under the Matabele. They are still agriculturists, but have only a few heads of goat and sheep, and these men, who were recognised by all the Betchuanas as very good men and neighbours, are now some of the greatest villains

in South Africa. There are no greater thieves than they. The Matabele have caused this.

The Matabele are at present a mixed race, and we find some of them dark-brown, some light-brown. In their features they are similar to many other tribes.

To the east of the Matabele is the kingdom of the Mashonas. Notwithstanding that it is a very unhealthy region in South Africa, it abounds with game, and is extremely fertile, rice and cotton being cultivated by the natives themselves. I know gold is to be found there, and I saw pieces of alluvial gold. I would say that there is a great future in store for that land. I endeavoured during my journeys to do all I could to open up the country to trade and commerce, but it was a very difficult thing to do. We know that on the east fever is very prevalent, and round the south is the Tsetse fly. From the Zambesi, trade might be carried on, but the Matabele are spreading in this direction, and would not allow white men to go into the country. The safest way is to go in from the south-east, to cultivate these lands for eight months, and during the fever season return into the Matabele country. The King of the Matabele, however, said that no white man should come in and settle down. He was afraid that the white men would help the Mashonas when they saw the cruelties practised upon them. I used to think that this opening up of trade could only be done by force; but I thought differently after the Zulu War, when I visited Cape Town and had an opportunity of meeting Sir Bartle Frere. He asked my opinion about these tribes, and when we came to talk about the Matabele I took the liberty to mention the following: "My opinion is that this king will now allow white men to come into the Mashona country, and allow them to trade, for two reasons: first, because since the power of the Zulus has been broken, I observed among the natives that the white men had gained much more respect; and secondly, because no more guns are to be supplied to the tribes, so that the king need not be afraid that the Mashonas will fight." When I came to London and had an interview with a few English gentlemen, I spoke about these matters, and was requested to make mention of them in one of our papers, which I did, reminding the public of the above; and when I was called upon by the Royal Geographical Society to deliver a second lecture, I received information from South Africa that the king of the Matabele had thrown Mashona land open. I hope this will be confirmed and made use of, and that in a short time we shall see great benefits accruing from it.

Besides those tribes of the Banthu family, there are other

very numerous tribes living in the Transvaal—the Baralongs, the Bakhatla, and others, most of whom I have already mentioned. Going farther to the south we find in one of the provinces of Cape Colony, on the banks of the Colodon, a tribe called the Basutos, who belong to some of the best tribes of the Banthu family. These Basutos accepted more of the virtues than of the vices of the white men. Moirosi, the rebel chief, had under him a conglomeration of all the dissatisfied elements of the Colonial Kaffirs—run-away servants and others, so that when we speak of the Basutos we must leave Moirosi out of consideration. This is a country where hundreds and thousands of bushels of corn are produced yearly, and we may hope that the other tribes of the Betchuanas will follow the example of the Basutos. The Basutos belong to the same tribe as the Makololo, whom Livingstone mentioned as living on the Upper Zambesi. These Makololo came from the south and conquered the tribes, and established a new kingdom. But the Makololo have been exterminated by the Marutse. The accompanying woodcut represents a medical man among the Marutse, who are also a



Banthu-tribe. Going lower down we find other tribes belonging to the Banthu family. They are pretty well known as Fingoes, Gaikas and Galekas, Pondos, etc.

Then we have the Zulus. I have mentioned already that

there were two Zulu kingdoms—that of Cetewayo and that of La-Bengola. That the Zulus are recognised as the best warriors among the Banthu families is true. All the tribes in the Marutse kingdom are afraid of the Matabele. When I came near to the junction of the Chobe with the Zambesi, the king sent messengers to me, and on their return asked them “Has he servants?” When they answered “Yes,” he said, “Which tribe are they—Matabele or Betchuanas?” They said “They belong to the Manansa tribe,” and then the king said that I might come in. He alluded to Livingstone, who is known there as “Monari,” and that traveller’s memory is still dear to them. I said to the king, “How came you to inquire if my servants belonged to the Zulu tribe or the Betchuanas?” He replied “If you had had Zulus, I would never have allowed you to come into my kingdom.”

The very short time at my disposal has compelled me to give but a rough outline of the whole subject; if I had had more time, I should have been better able to deal with it and to give you a clearer idea of the different tribes. You will therefore excuse me if I have omitted many points which I otherwise might have dealt with.

DISCUSSION.

Mr. KEANE took the opportunity of asking Dr. Holub whether he had detected amongst the natives any instances of a tufted growth of hair. Many ethnologists still held that this peculiarity was characteristic of certain Negro and Negroid races, and especially of the Hottentots. An argument for the affinity of the Oceanic and South African dark races had even been based on the assumed reality of the phenomenon. As the point had given rise to much discussion, it would be satisfactory to know whether such an original observer could help towards its definite solution. He would also like to know whether the clicks were in use amongst the Bantu tribes as far north as the Zambesi. These sounds were supposed to be originally peculiar to the Bushman language, whence some of them had passed into the Hottentot and south-eastern Bantu dialects (Zulu and Ama-Khosa); but apparently none of the northern Bantu tribes had adopted them. Touching Dr. Holub’s statement that, though often differing widely in physique, all the Bantu tribes must still be regarded as of one race inasmuch as all spoke varieties of the same language, he thought that this view gave undue importance to the linguistic element. No doubt the Bantu language had spread over the whole Continent from the Equator to the Cape and from the Swaheli Coast to the Ogoway Delta. But this would seem to have been brought about by conquest and other influences rather than by diffusion of a single stock over such a vast area already occupied by Bushmen, Hottentots, and

many Negro races. Hence it seemed safe to regard the Bantu rather as a linguistic than a racial family, corresponding somewhat to such collective terms as Aryan or Finno-Tatar elsewhere, terms to which few Anthropologists would now feel inclined to attach any great ethnical value.

Mr. CORNELIUS WALFORD believed that famine would be found upon inquiry to have operated largely upon the migration of race in different parts of the globe and in all periods of time. Very extensive migrations had resulted from this cause in India in modern times. This law, founded on the force of necessity, he thought had not been heretofore regarded sufficiently either by Ethnologists or Anthropologists: its operation under certain conditions might be more potent than conquests; and more difficult to explain in later times, as regards people who keep no records. Such traditions, however, were likely to be preserved among the people themselves; and the facts might therefore be ascertained by travellers who would keep the point in their minds. He regarded Dr. Holub as the modern Livingstone of African travel, and as he was young, and in robust health, we had a fair right to look forward to much more information of a valuable character from him in due course.

NOTES *on the* WESTERN REGIONS. Translated from the "Tsëen Han Shoo," Book 96, Part 1. By A. WYLIE, Esq.

THE intercourse of China with the Western regions commenced in the time of the Emperor Woo-te (B.C. 140-87). The thirty-six kingdoms then opened up became afterwards gradually subdivided into more than fifty; all lying to the west of the Heung-noo, and south of Woo-sun. Along the north and south run great mountains, and through the centre flows a river.* From east to west the land is more than 6,000 *le* in extent, and from north to south it is over 1,000 *le*. On the east it touches the confines of China at the Yuh gate and the Yang barrier.

On the west it is limited by the Tsung-ling mountains. The Southern mountains† commence on the east from Kin-ching‡ and are connected with the southern hills of China. The river has two sources, one of which rises in the Tsung-ling mountains,§ the other in Khotan.|| Khotan lies at the foot of the Southern mountains,

* The Tarim.

† The Kwän-lun range.

‡ This is still represented by the district of Kin in the prefecture of Lan-chow in Kansuh province. The district city is in N. lat. 35° 55', E. long. 104° 8'.

§ The Kashgar river.

|| The Yarkand river.

and the river runs northward till it joins its confluent from the Tsung-ling, and then flows eastward into Lake Lob, which is also called the Salt Marsh. This is over 300 *le* distant from the Yuh gate and the Yang barrier, and is 300 *le* in length and breadth. The water is stationary, neither increasing nor diminishing in summer or winter. The river is then said to run under ground, and issue again at Ts'eih-shih,* where it becomes the Yellow river of China. From the Yuh gate and Yang barrier there are two roads through the Western regions. That by Shen-shen, skirting the River Po, on the north of the Southern mountains, and leading west to Sha-keu,† is the Southern road. After this road passes the Tsung-ling mountains, it leads to the country of the Ta Yuě-she and Gan-sēih. From the Royal Palace of Anterior Keu-sze,‡ following the course of the River Po, in the direction of the Northern mountains as far as Soo-lih,§ is the Northern road. This road passing westward across the Tsung-ling mountains, goes on to Ta-wan (*i.e.*, Fergana), K'ang-keu (*i.e.*, Sogdiana), and the Yen-ts'ae (Alan) country. In Yen-ke|| and the various kingdoms of the Western regions the land is covered with cities, villages, cultivated fields, and domestic animals; and the inhabitants differ in their customs from the Heung-noo and people of Woo-sun. Hence they were all employed in the service of the Heung-noo. The Jih-ch'uh Prince, on the western border of the Heung-noo territory, appointed a Slaves' Protector General, whose office was to rule the Western regions, and who always dwelt in the dangerous part of Yen-ke. He had to levy the taxes on the cultivated land, and received of the wealth of these kingdoms.

From the time of the decline of the Chow dynasty, the barbarians of the North and West had dwelt intermixed on the north of the King and Wei rivers.

When Che-hwang of the Ts'in appropriated the interjacent countries, he built the Great Wall to form the boundary of China. But it only came west as far as the River T'aou.¶

The Han succeeded, and in the time of the Emperor Woo-te, the barbarians on all sides were invaded, the dignity of the empire was extended, and Chang Keen first opened up the way into the Western regions.

* Literally "Accumulated stones," the name of a mountain.

† This represents the modern Yarkand.

‡ This was the country known by the name of Kaou-chang during the T'ang dynasty, and was in later ages inhabited by the Ouigour nation.

§ The ancient name of Kashgar.

|| On the site of the present Kharashar.

¶ A large affluent of the Yellow river, west of the city of Lan-chow in Kansuh province, flowing near the town of T'aou-chow, lying south-east of Kokonor.

After him the Light-horse General attacked and subdued the right-hand land of the Heung-noo (B.C. 121). The Kings of Kwān-ya and Heu-choo then submitted to the Han, when the populations of their kingdoms were removed, and the building of the Wall was begun from Ling-keu westward. The region of Tseu-tseuen was first established, and afterwards gradually the people were removed in to fill it. He also divided the three territories of Woo-wei,* Chang-ya,† and Tun-hwang into four regions, for which he made two barriers.

After the Urh-size General had reduced Ta-wan (B.C. 104), the powers in the Western regions were greatly afraid, and most of them sent envoys to China with offerings of tribute; while the Han imposed office on more of the Western region potentates. In consequence of this, resting stations were erected at intervals, from Tun-hwang westward as far as Lake Lob; and at both Lun-t'ae‡ and K'eu-le there were several hundred agricultural troops. An envoy was appointed as Deputy Protector, to rule and defend, by sending envoys to the outside countries.

In the time of Seuen-te (B.C. 73-49), the Cavalry leader Wei, was sent with a commission to protect the several kingdoms from Shen-shen westward; when he subdued Koo-size. He did not utterly exterminate it, however, but divided the nation between the two Kings of Anterior and Ulterior Keu-size. As for the six nations on the north of the mountains, the Han at that time only undertook to protect the Southern road, and could not include all on the Northern road. Yet the Heung-noo were not at rest.

After this the Jih-ch'uh Prince rebelled against the Shen-yu, submitted to China, with all his followers, and was received by Ching Keih, the envoy who protected the country west from Shen-shen. On his arrival in China, the Jih-ch'uh Prince was created Marquis of Kwei-tih, and Ching Keih was made Marquis of Gan-yuen. This took place in the year B.C. 59.

Ching Keih was then appointed to defend the Northern road, and hence he was entitled Governor General, a title that originated with the appointment of Ching Keih. From this time the office of Slaves' Protector General was abolished. The Heung-noo became still more weakened, and were unable to approach the Western regions. The military colonies were therefore removed and planted in the countries of Pih-seih, Keen-pe, and Sha-keu. The Deputy Protectors of the military colonies were first attached to the Governor General. The Governor General

* Now represented by the prefecture of Leang-chow in Kansuh province; of which the chief city is in N. lat. 37° 59', E. long. 102° 48'.

† Now represented by the prefecture of Kan-chow in Kansuh province, of which the chief city is in N. lat. 39° 0' 40'', E. long. 100° 56'.

‡ A military colony to the west of Yen-ke, which is represented by the present Yugur, about 60 miles east of Kuchay.

took the oversight of the affairs of Woo-sun, Sogdiana, and the various foreign countries. When any sign of disaffection was manifest, he reported the same to headquarters. If it was practicable, the matter was amicably adjusted; if it was a case for coercion, then he attacked them. The Governor General had his residence in the city of Woo-luy,* distant from the Yang barrier 2,738 *le*, and in proximity to the officer of the agricultural colony of K'eu-le. The land is rich and productive, being medium-class land of the Western regions. Hence the Governor General had his seat there.

In the time of the Emperor Yuen-te (B.C. 48-33), the *Woo-ke* Deputy Protector was also appointed, and a military colony established at the Royal Palace of Anterior Keu-sze. About this time, Tsze-leih-che, the Heung-noo King of Eastern Poo-luy,† submitted to the Governor General with more than 1,700 followers. The latter divided the western part of the kingdom of Ulterior Keu-sze into Woo-tan and Tsze-le, in which he placed this new accession. After the reigns of Seuen-te and Yuen-te, the Shen-yu was styled a border vassal, and the Western regions gave in their submission. The extent of the land, the hills and the rivers, the kings and marquises, the number of the people, and the distances by the roads were all carefully examined and noted.

Outside the Yang barrier the inhabitants of the adjacent country were first called Chō Keang.‡ The King of Chō Keang was called Keu-hoo-lae, and lived at a distance from the Yang barrier of 1,800 *le*, and from Chang-gan 6,300 *le*, in a secluded part on the south-west, away from the high road. The kingdom consisted of 450 families, comprising 1,750 individuals and 5,000 well-trained soldiers. On the west it was bounded by Tsey-müh.§ The people removed their flocks for the convenience of water and pastures. They did not cultivate their fields, and depended upon Shen-shen, Tsey-müh, and Kō-shan for iron, with which they made military implements. Their soldiers were armed with bows and lances, and wore knives, swords, and helmets. Proceeding north-west from thence to Shen-shen, the high road is reached.

Shen-shen.¶

The original name of the kingdom of Shen-shen was Low-lan.

* On the site of the modern Tsetar, about 90 miles west of Kharashar.

† The modern Tehanggi.

‡ A division of the country of Turfan.

§ It has been suggested by Mr. Kingsmill that this represents the district of Shemotóna mentioned by the Buddhist traveller Heuen-chwang, lying between Khotan and Lake Lob. ("Chinese Recorder," vol. vii, p. 341.)

¶ Although we may not be able to identify this place with certainty, we have

The capital is the city of Woo-ne, which is distant from the Yang barrier 1,600 *le*, and from Chang-gan 6,100 *le*. The kingdom contains 1,570 families, comprising a population of 14,100, with 2,912 trained troops, a Guardian Marquis, a Marquis of Keih-hoo, a Protector General of Shen-shen, a Protector General for repelling the Keu-sze, a Right Tseay-keu, a Left Tseay-keu, a Prince for repelling the Keu-sze, and two Interpreters-in-chief. The seat of government of the Chinese Governor General lies to the north-west 1,785 *le*. The kingdom of Shan is distant 1,365 *le*; and Keu-sze lies to the north-west 1,890 *le*. The land is sandy and salt, and there are few cultivated fields.

yet sufficient indications to give an approximate idea of its position, as being south of, and not far distant from Lake Lob. It is mentioned under the same name by the Buddhist traveller Fa-heen in his journey to India; who places it at seventeen days' journey, or 1,500 *le* from Tun-hwang, a known fortress in N. lat. 39° 40', E. long. 94° 50'. According to the text, the capital is 6,100 *le* from Chang-gan the metropolis of China, now Se-gan. Measuring off this distance according to the Han *le*, brings us to about 88° E. long. or 7 degrees west of Tun-hwang, from which Fa-heen began his seventeen days' journey; giving him an average of somewhere about twenty-five miles a day, which we may assume is not far from the truth. Heuen-chwang, another Buddhist pilgrim, who passed through it on his return journey, gives the distance by road from Khotan—another known point—about 2,530 *le*. The country is spoken of by Heuen-chwang under the original name of Low-lan, in which he places the city of Na-fō-po. We have probably a transmutation of this latter name still remaining, in the lake "Lob" or "Lop," as suggested by Colonel Yule. The "She ke," book cxxiii, fol. 2, tells us that "there were cities with suburbs belonging to Low-lan and Koo-sze, on the banks of the Salt Marsh." Now as Heuen-chwang's *Na-fō-po* appears to represent the Sanscrit *Lavapa*, "Salt water," we have in this a translation of the Chinese *Yen-tēih*, or "Salt Marsh." Marco Polo, who passed through the place in the 13th century, speaks of it as a large town on the edge of the desert, and adds:—"On quitting this city, they enter on the desert." This perfectly agrees with the position of Shen-shen, as given by Fa-heen. In some notices collected by Mr. Wathen from Turkestan pilgrims at Bombay, he states that—"Lopp is remarkable for a salt-water lake in its vicinity;" and in an Itinerary presented to the Geographical Society by Mr. Johnson, in 1866, Lob is noted as a "village, by a large lake with fish." These several notices seem clearly to prove that there is still a village of Lob, the representative of a former city on the border of the lake; and that this is near about the site of the ancient capital of Shen-shen in the time of the Han. A variety of confirmatory statements might be gathered from Chinese works; but it will be sufficient to quote from the "Shwuy king," as edited by scholars of the present dynasty; where we read:—"The Tarim debouches into the marsh. The marsh lies on the north of the kingdom of Laou-lan, at the city of Woo-ne. Formerly the popular name of this lake among the inhabitants was Laou-lan lake."

Five days before reaching Lob, Marco Polo passed through the city of Charchan. This has been identified by Colonel Yule with a place still existing under the name of Chachan, 95 miles from Lake Lob. Mr. Kingsmill tries to identify this with Fa-heen's Shen-shen; but the distance from the great desert is too great, although we may possibly have in it a trace of the ancient name, and it may even have been included within the boundaries of the kingdom, as it existed in the time of the Han. ("Record of the Buddhistic Kingdoms," by Herbert A. Giles, p. 3.—"Mém. sur les Cont. Occid.," trad. par M. Stanislas Julien, tom. ii, pp. 247, 427, 428, &c.—"The Book of Ser. Marco Polo," by Colonel H. Yule, C.B., 2nd edition, vol. ii, pp. 200-204.—"Journal of the Royal Geographical Society," vol. xxxvii, p. 44.—"The Chinese Recorder," vol. vii, p. 343.)

The country relies on the neighbouring kingdoms for cereals and agricultural products.* The country produces jade,† abundance of rushes, the tamarix, the *elaëococca verniciifera*, and white grass. The people remove with their flocks and herds for pasturage where they can find sufficiency of water and herbage. They have asses, horses, and many camels. They can fabricate military weapons the same as the people of Chō Keang.

At first the Emperor Woo-te, under the influence of Chang Keen's representations, was very desirous to cultivate an intercourse with Ta-wan and the interjacent countries, and the envoys of the respective nations followed each other continuously, more than ten in number in the course of a year. Low-lan, in concert with Koo-sze,‡ however, being on the high road, harassed these officials, attacked and robbed the Chinese envoy Wang K'wei and his party, and on various occasions acted as eyes and ears to the Heung-noo, causing their troops to intercept the Chinese envoys. The latter were profuse in their statements that the kingdom contained cities and towns, and that the military were weak and might easily be vanquished. Woo-te thereupon sent Chaou Po-noo, the Marquis of Tsung-peaou, to take command of the cavalry of the dependent States with the local troops, numbering several tens of thousands, and make an attack on Koo-sze. Wang K'wei, who had several times suffered at the hands of Low-lan, received the Imperial order to assist Chaou Po-noo in the command of the army. The latter advancing at the head of 700 light-horse, seized the King of Low-lan; then subjugated Koo-sze, and, relying on the prestige of his fierce troops, he overawed the States dependent on Woo-sun and Ta-wan. Chaou Po-noo was further promoted Marquis of Tsüh-ya, and Wang K'wei was made Marquis of Haou. About this time the Chinese erected fortresses and entrenchments at intervals between that country and the Yuh gate. Low-lan having submitted, presented offerings of tribute to China, which the Heung-noo hearing of, sent troops to attack them. On this the King of Low-lan sent one son as a hostage to the Heung-noo, and another to China.

Afterwards, when the Urh-sze General went to attack Ta-wan, the Heung-noo wished to intercept him. The General's troops, however, presented such a formidable appearance, that they did

* Fa-heen says of Shen-shen:—"The land is rugged and barren." Marco Polo speaks of the province of Charchan as sandy, and says:—"Quitting Charchan [the capital city presumably], you ride some five days through the sands, finding none but bad and bitter water." ("Marco Polo," *l.c.* p. 201.)

† Marco Polo says of Charchan:—"The province contains rivers which bring down jasper and chalcodony, and these are carried for sale into Cathay, where they fetch great prices."

‡ The same as Keu-sze.

not dare to take the initiative, but sent cavalry to wait in Low-lan till the Chinese envoy should again pass, wishing completely to cut off his return. The Chinese Military Chief, Jin Wān, had then command of the military colony at the Yuh gate barrier; and when the Urh-sze General was afterwards obstructed, Jin Wān ascertained the facts from some captives and reported the same to the capital.* The Emperor issued a rescript ordering Jin Wān to lead troops by a convenient road, and capture the King of Low-lan. The General proceeded to the city gate, where he reproached the King for his conduct, but the latter replied: "When a small State lies between two great kingdoms, if it has not an alliance with both, it cannot be at rest. I wish now to place my nation within the bounds of the Chinese empire." The Emperor confiding in his words re-established him in his kingdom, and commissioned him to keep a watch over the movements of the Heung-noo. From this time the Heung-noo had no great intimacy with, or confidence in, Low-lan.

In B.C. 92 the King of Low-lan died, when the people of the country came to request the son, who was residing as a hostage in China, to succeed to the throne; but the hostage Prince had always been treated as a criminal while in China, and as a punishment was confined in the Silkworm-house Palace. Hence, instead of sending him home, the Chinese informed the applicants that the Emperor was so tenderly attached to his attendant prince, that he could not part with him, and requested them to install the next son in the dignity. When the King of Low-lan was appointed, the Chinese again reproached the hostage prince with the fact that his father had also sent a son as hostage to the Heung-noo. On the death of the next king, the Heung-noo first hearing of it, sent their hostage prince back, who succeeded to the throne. China then sent an envoy with a rescript to the new king, ordering him to pay a visit to Court, when the Emperor would bestow upon him most liberal gifts. The wife of the former king by a second marriage, who was consequently the step-mother of the present king, said to him: "Your royal predecessors sent two sons to China as hostages, neither of which returned. Is it indeed reasonable that you should now go to Court?" The King, taking her counsel, discharged the envoy with the remark: "Having newly acceded to the throne, the affairs of the kingdom are not yet adjusted. I wish to wait a year or two, after which I will have an audience with the Emperor." Now the extreme eastern border of the kingdom of Low-lan where it approached nearest to China, was opposite

* Compare the "Journal of the Anthropological Institute," January, 1874, p. 436.

the Pih-lung mound, where there was a scarcity of water and pasture; and it always fell to its share to provide guides, to carry water and forward provisions to meet the Chinese envoys; but being frequently exposed to the oppressive raids of the soldiery, they at last resolved that it was inconvenient to hold intercourse with China. Afterwards, again on the revolt of the Heung-noo, they several times intercepted and killed the Chinese envoys. The King's younger brother, Hwuy-too-ke, who had submitted to the Han, communicated all these facts to the Chinese.

In B.C. 77 the Generalissimo, Ho Kwang-pih, sent Foo Keae-tsze, the Superintendent of Ping-lo, to stab the King. Foo Keae-tsze hastily selected some bold and daring followers, and having received gold and silks, circulated the report that the object of his mission was to make presents to a foreign State. Having reached Low-lan, he deceived the King with the pretence that he had presents for him. The latter, delighted with the event, unsuspectingly invited Foo Keae-tsze to drink wine. When the King was intoxicated, Foo removed the royal screen and told two of his sturdy followers to stab him from behind. The nobles who were sitting round all fled. Foo Keae-tsze then made an announcement, saying: "The deed just accomplished is a retribution for the King's crimes against the Han. The Emperor sent me to put him to death. You must set up the King's younger brother, Hwuy-too-ke, now in China, as King." The Chinese troops, who had just arrived, not daring to move, he gave orders that the kingdom of Low-lan should cease to be. Foo Keae-tsze then decapitated the King, and having committed the head to the wardens, it was suspended at the north gate, and Foo Keae-tsze was promoted Marquis of E-yang. Hwuy-too-ke was then set up as King, and the kingdom re-established under the name of Shen-shen, for which a seal of investiture was engraved. One of the ladies of the royal palace was bestowed on him for a consort. Carriages, cavalry, a baggage train, ministers of state, generals, troops, and officers of every grade escorted him outside the east gate, and sent him away as the first of a new line. The King himself presented the following request to the Emperor: "I have resided long in China, and now that I am returning weak and single-handed, while there is still a son of the former King living, I fear I shall be assassinated. In our kingdom there is the city of E-tun, where the land is rich and productive; may I request the Han to send a general to plant a military colony there, and collect the grain, so that your servant may rely upon his prestige?" The Han monarch thereupon sent a cavalry leader with forty subordinates to cultivate the fields at E-tun, in order to guard the place and

soothe the people. After this a Protector General was appointed and this was the beginning of placing officers in E-tun.

Following the high road from China, through Shen-shen, westward to Tseay-mūh is 720 *le*.^{*} Beyond Tseay-mūh the five cereals are everywhere cultivated. The land, herbage, trees, the animals they rear, and the military implements they make, are all much the same as in China, with some differences. A record of these matters is given below.

Tseay-mūh.[†]

The capital of the kingdom of Tseay-mūh is the city of Tseay-mūh, which is distant from Chang-gan 6,820 *le*. The State contains 230 families, comprising 1,610 persons, with 320 trained soldiers, a Guardian Marquis, a Right General, a Left General, and an Interpreter-in-chief. The city is distant from the seat of the Governor General on the north-west 2,258 *le*. The country joins Hwuy-le on the north, and it is about three days' journey to the kingdom of Little Wan on the south. Grapes and other fruits are produced. The kingdom of Tsing-tseuē on the west is 2,000 *le* distant.

Seaou Wan.[‡]

The capital of the kingdom of Seaou Wan is the city of Yuling, distant from Chang-gan, 7,210 *le*. The kingdom contains 150 families, comprising a population of 1,050 people, with 200 trained soldiers, a Guardian Marquis, and a Left and a Right Protector General. The seat of the Governor General lies to the north-west 2,558 *le*. The country joins that of Chō Keang on the east, lying out of the way of the high road.

Tsing-tseuē.[§]

The capital of the kingdom of Tsing-tseuē is the city of

^{*} Heuen-chwang gives the distance from Tsow-mo to Na-fō-po as 1,000 *le*.

[†] Fewer notices are to be found of this kingdom than the preceding; yet as we gather from the distances, it lay on the high road to the west, and adjoining that of Shen-shen. It is mentioned in the "Shwuy king," as lying to the east of the kingdom of Yu-me, and south of the southern confluent of the Tarim river. Fa-heen does not notice the place in his narrative; but Heuen-chwang speaks of the kingdom of Tsow-mo, as the last through which he passed before reaching Na-fō-po, on his homeward journey. This, which he says is identical with Neē-muh, is without doubt the same. He also calls the country, as well as the capital city Che-mo-ta-na; which appears to be still the old name modified to accommodate the language of the natives. He says:—"The city walls are very high, but there are now no inhabitants."

[‡] *Seaou Wan* means "Little Wan;" probably so called to distinguish it from Fergana, which is called *Ta Wan*, or "Great Wan."

[§] According to the "Shwuy king" this lay on the south bank of the southern

Tsing-tseuē, distant from Chan-gan 8,820 *le*. The kingdom contains 480 families, comprising 3,360 persons, with 500 trained troops, a Protector General of Tsing-tseuē, a Right and a Left General, and an Interpreter-in-chief. The seat of the Governor General lies to the north 2,723 *le*. The Kingdom of Jung-leu lies four days' journey to the south, through a country abounding in narrow passes. Yu-me lies to the west, 460 *le* distant.

*Jung-leu.**

The capital of the kingdom of Jung-leu is the city of Pe-pin, distant from Chang-gan 8,300 *le*. The kingdom contains 240 families, comprising 1,610 persons, with 300 trained troops. The seat of the Governor General lies to the north-east 2,850 *le*. The country joins Little Wan on the east, Chō Keang on the south, and Keu-līh on the west. It lies off the high road from China.

Yu-me.†

The capital of the kingdom of Yu-me is the city of Yu-me, distant from Chang-gan 9,280 *le*. The kingdom has 3,340 families, comprising a population of 20,040 persons, with 3,540 trained troops, a Guardian Marquis, a Right and a Left General, a Right and a Left Protector General, a Right and a Left Knight, and two Interpreters-in-chief. The seat of the Governor General lies to the north-east 3,553 *le* distant. The country joins Keu-līh on the south, Kwei-tsze on the north-east, and Koo-mīh on the north-west. Khotan lies 390 *le* to the west. The present name of the country is Ning-me.

Keu-līh‡.

The capital of the kingdom of Keu-līh is the city of Keen-too, distant from Chang-gan 9,950 *le*. The kingdom contains 310 families, comprising 2,170 persons, with 300 trained soldiers. The seat of the Governor General lies to the north east 3,852 *le*. The country joins Jung-leu on the east, Chō Keang on the west, and Yu-me on the north.

great confluent of the Tarim. The distances given in our text from Chang-gan and the residence of the Governor General, place the site of the city somewhere about the location of Khotan as given in our maps.

* The text indicates this to be a tribe lying on the north-western outskirts of the territory now forming the Kingdom of Tibet.

† The *Shiuey king* places this country on the south bank of the northern confluent of the Tarim; which agrees with the indications in the text. All point to a spot nearly coincident with the present Yarkand.

‡ From the indications in the text, this appears to correspond with the site of modern Sundzu.

*Yu-teen (Khotan)**

The capital of the kingdom of Khotan is West City, distant from Chang-gan 9,670 *le*.

The kingdom contains 3,300 families, comprising a population of 19,300 persons, with 2,400 trained troops, a Guardian Marquis, a Right and a Left General, a Right and a left Knight, an East City Chief, a West City Chief, and an Interpreter-in-chief. The seat of the Governor General lies to the north-east, distant 3,947 *le*. The country joins Chō Keang on the south, and Koomih on the north. The waters on the west of Khotan all flow westward into the Western (Caspian?) Sea. The waters on the east all flow eastward into the Salt Marsh (Lake Lob), from which springs the source of the Yellow river. The country produces abundance of jade and other stones.† Pe-shan lies 380 *le* to the west.

Pe-shan.‡

The capital of the kingdom of Pe-shan is the city of Pe-shan,

* There is no doubt about this name designating the well-known Khotan, but from the several indications here given, it is almost certain that the city spoken of as the capital lay far to the west of modern Khotan. The distance given from Chang-gan carries us to about the 78th degree of longitude, and renders it probable the city lay on an upper bend of one branch of the Yarkand river. This would be the "West city" of the text; from which we learn that there was also an East city, but at what distance we are not told. Both, we may suppose, were known by the name of Yu-teen. Some traditionary statements in Heuen-chwang's narrative are strongly suggestive of the elastic and shifting character of the boundaries of this kingdom. But perhaps the strongest presumption for the more westward site of Khotan is afforded by the statement that the country extended to the watershed of the Pamir; as we are told that the waters on the west all flowed westward, and those on the east flowed eastward. The "Shwuy king" tells us that after passing the kingdom of Yu-teen, the river flows eastward, passing in succession the kingdoms of Yu-me, Tsing-tseuē, and Tseay-mūh. Fa-heen spent over three months in this city, in the beginning of the fifth century; but he gives scarcely any clue to the position. Heuen-chwang also passed through Khotan on his return journey, and gives the distance from *Cho-ken-kea*, the ancient Yarkand, as 800 *le*, which seems to agree tolerably well with the present position of the city. Marco Polo, who passed the same road, says:—"Cotan is a province lying between north-east and east, and is eight days journey in length." (See "*Mémoires sur les Contrées Occidentales*," tom. ii, pp. 223-224.—"*Record of the Buddhistic Kingdoms*," pp. 5, 9.—"*Marco Polo*," vol. i, p. 196.)

† Heuen-chwang says:—"From this country are got woollen carpets, fine felts, well-woven taffetas, white and black jade." As jade is traditionally spoken of in China as the production of Khotan, it is remarkable that Marco Polo says nothing about it. Neither does Mr. Johnson, who visited the place in 1865. ("Rec. of the Bud. Kingd." p. 5.—"*Mém. sur les Cont. Occid.*" tom. ii, p. 427, etc.—Yule's "*Marco Polo*," 2nd edition, vol. i, pp. 196, 197.)

‡ The "*Se yih t'ung wän che*" (book iii, fol. 25), a native polyglott geographical dictionary, gives Duwa, in the province of Yarkand, as on the site of the ancient Pe-shan. The "*Shwuy king choo t'oo tseen kaou*" (book i, fol. 3), places the site of Pe-shan south-east of Yarkand, and west of Khotan.

distant from Chang-gan 10,050 *le*. The kingdom contains 500 families, comprising 3,500 persons, with 500 trained troops, a Right and a Left General, a Right and a Left Protector General, a Knight and an Interpreter-in-chief. The seat of the Governor General lies to the north-east, at a distance of 4,292 *le*. The kingdom of Woo-ch'a lies to the south-west 1,340 *le*. The country joins T'een-t'uh (India) on the south, and is distant from Koo-mih on the north 1,450 *le*. The road to Ke-pin (Kophen) and Woo-yih-shan-le lies to the south-west. North-west to Sha-keu is 380 *le*.

*Woo-ch'a.**

The capital of the kingdom of Woo-ch'a is the city of Woo-ch'a, distant from Chang-gan 9,950 *le*. The kingdom contains 490 families, comprising 2,733 persons, with 740 trained troops. The seat of the Governor General lies north-east 4,892 *le*. The country joins Tsze-hō and P'oo-le on the north, and Nan-tow on the west. The hills are surrounded by cultivated fields, and white grass grows among the rocks. The dwelling-houses are built of stone; and the people join hands in drinking. They have small trained horses and asses, but no oxen. To the west is the Hindu Cush. The capital is distant from the Yang barrier 5,888 *le*, and from the seat of the Governor General 5,020 *le*. The Hindu Cush is a rocky mountain range. There are gorges and valleys with no connecting road, but having ropes and chains thrown across, by means of which the passage is effected.

Se-yay.†

The title of the King of Se-yay is King of Tsze-hō, and the capital is called Keen-kōh, being distant from Chang-gan 10,250 *le*. The kingdom contains 350 families, comprising a population of 4,000; with 1,000 trained troops. The seat of the Governor General lies to the north-east, at a distance of 5,046 *le*. The country joins Pe-shan on the east, Woo-ch'a on the south-west, Sha-keu on the north, and P'oo-le on the west. The kingdoms of P'oo-le, E-nae, and Woo-luy all belong to the same ethnic class with Se-yay. The Se-yay differ from the Tartar nations; being rather connected by affinity with the Keang and

* The indications in the text would lead us to place this territory somewhere about Sarkol. It may possibly have been near the present Kurghan-i-Ujadbai.

† The "Se yih t'ung wän che" (book iii, fol. 23) gives Yul-arik in the province of Yarkand, as the modern representative of ancient Se-yay. On Wyld's map there is a place named Yolarik on a confluent of the Yarkand river, in N. lat. 37° 26', E. long. 77° 22'. The corresponding place on the Russian map is named Kargalik.

Te-hing. The people move hither and thither, according to the supply of water and pasturage for their flocks and herds. The land of Tsze-hō* produces jade and other precious stones.

P'oo-le.†

The capital of the kingdom of P'oo-le is the city‡ of P'oo-le, distant from Chang-gan 9,550 *le*. The kingdom contains 650 families, comprising a population of 5,000, with 2,000 trained troops. The seat of the Governor General lies north-east, distant 5,396 *le*. Sha-keu lies to the east, at a distance of 540 *le*. Soo-lih is 550 *le* to the north. The country joins Se-yay and Tsze-hō on the south. Woo-luy lies 540 *le* to the west. There is a Marquis and a Protector General. For field products they rely on Sha-keu. Their national customs are the same as Tsze-hō.

E-nae.§

The capital of the kingdom of E-nae is distant from Chang-gan 10,150 *le*. The kingdom contains 125 families, comprising 670 persons; with 350 troops. The seat of the Governor General lies north-east, at a distance of 2,730 *le*. Sha-keui distant 540 *le*, and Woo-luy 540 *le*. Soo-lih is 650 *le* to the north. The country joins Tsze-hō on the south, and their customs are the same. The cereals are scarce, and they rely on Soo-lih and Sha-keu for agricultural produce.

Woo-luy.||

The capital of the kingdom of Woo-luy is the city of Leu,

* There is great uncertainty about the position of this place. It was the first station Fa-heen stopped at after leaving Khotan, on his way to Ujjana, but the time he took—twenty five days—to reach it, throws a difficulty in the way, as it appears to have been just to the north of the Karakorum range. Otherwise we might suggest somewhere about Shahidula at the Sokhbulak Pass; a little to the south of which "Jade Quarries" are marked on Wyld's map. This may perhaps be included in the country. After a careful review of Fa-heen's narrative, Professor Wilson remarks regarding this part of the journey:—"It is impossible, therefore, not to suspect something wrong in the distances or the bearing, perhaps in both." ("Journal of the Royal Asiatic Society," 1838, p. 113.)

† The "Se yih t'ung wän che" (book iii, fol. 27) gives Serlek in the province of Yarkand, as the modern representative of this place. The "Shwuy king choo t'oo shwō tseen kaou" (book i, fol. 3) tells us that the country lay between the modern Yengihissar and Yarkand. The Russian map has a place named Sajryk, a few miles south-west of Yengihissar.

‡ The text has *kuō* (kingdom) here, which is obviously a typographical error for *ching* (city).

§ According to the "Shwuy king choo t'oo shwo tseen kaou" (book i, fol. 3) the site of ancient E-nae should be on the southern border of Yengihissar, somewhere about N. lat. 39°, E. long. 76°.

|| The "Se yih t'ung wän che" (book iii, fol. 18) gives Aratchul as the present name of the ancient Woo-luy country. This name is found in the native atlas

distant from Chang-gan 9,950 *le*. The kingdom contains 1,000 families, comprising a population of 7,000 persons. The seat of the Governor General lies north-east at a distance of 2,463 *le*. P'oo-le lies 540 *le* to the south. The country joins Woo-ch'a on the south, Keuen-tüh on the north, and on the west. The dress of the people resembles that of Woo-sun; and their customs are the same as Tsze-hö.

*Nan-tow.**

The capital of the kingdom of Nan-tow is distant from Chang-gan 10,150 *le*. The kingdom contains 5,000 families, comprising a population of 31,000 persons, with 8,000 trained troops. The seat of the Governor General lies to the north-west at a distance of 2,850 *le*. Woo-luy lies 340 *le* to the west. Ke-pin lies 330 *le* to the south-west. The country joins Chö Keang† on the south, Heu-seun on the north, and the Ta Yuë-she on the west. They cultivate the five cereals, grapes and other fruits.‡ The country produces silver, copper, and iron, and they make military weapons, the same as other nations. The kingdom is attached to Ke-pin.

Ke-pin (Kophen).§

The capital of the kingdom of Kophen is the city of Sun-

Hwang chaou chung vae yih tung yu t'oo, in about N. lat. 39°, E. long. 74°, on the western border of the Kashgar province; but no corresponding name appears on any accessible European map.

* The distances and positions here seem to lead us somewhere about the southern part of the country of Shignan, where the city of Ishkashim is located. This is spoken of by Heuen-chwang, who says of it:—"This kingdom is an ancient province of the kingdom of Tokharistan. It is about 1,000 *le* from east to west, and 300 *le* from north to south; the capital is 15 or 16 *le* in circumference. The productions of the soil and manners of the inhabitants are much like those of Mōmkan." Marco Polo also speaks of the town of Casem, at the distance of a three days' ride from Taican, and says:—"This town is at the head of a very great province, which is also called Casem. The people have a peculiar language." ("Mém. sur les Cont. Occid.," tom. ii, p. 196.—"Marco Polo," vol. i. p. 161.)

† It seems a little difficult to reconcile this statement with fact. Chö Keang represented Tibet—or at least the northern portion of it. We must, however, extend its boundaries as far west as Baltistan or Little Tibet, in order to give it a chance of meeting the country here spoken of.

‡ At the place above indicated Heuen-chwang tells us:—"The sowing of grain and the harvests take place at regular periods. There is a flourishing vegetation of plants and trees; and the flowers and fruits are in extraordinary abundance." ("Mém. sur les Cont. Occid.," tom. ii, p. 193.)

§ By general consent of investigators, this has been admitted to be the ancient kingdom of Kophen, a name closely connected with—if not derived from—the River Kophes, which is found in the Vedas under the form *Kubha*, and appears in the classical writers also as *Khoes* and *Koaspes*. This country was identical with Kabulistan of later times, the capital of which is represented by the modern Cabul, the capital of Afghanistan. Heuen-chwang appears to have taken

seen,* distant from Chang-gan 12,200 *le*. The kingdom is not under the control of the Governor General. The numbers of families, persons, and trained troops are very large, as it is a great kingdom. The seat of the Governor General lies north-west at a distance of 6,840 *le*. The kingdom of Woo-ch'a lies 2,250 *le* to the east. The kingdom of Nantow is nine days' journey to the north-east. The country joins the Ta Yuë-she on the north-west and Woo-yih-shan-le on the south-west. Formerly, when the Heung-noo subjugated the Ta Yuë-she,† the latter migrated to the west, and gained the dominion over the Ta-hea (Dahæ);‡ whereupon the king of the Sae (Sacæ) moved south and ruled over Kophen. The Sae were scattered, and at times formed several kingdoms.§ North-west of Soo-lih the Heu-seun, Keuen-tüh, and consanguineous nations are all descendants of the ancient Sae. The land of Kophen is flat; and the climate mild and agreeable.|| The country produces *medicago sativa*, various herbs, strange trees, sandal wood, *sophora japonica*, *rottlera japonica*, bamboo, and the varnish tree. They cultivate the five grains, grapes and other fruits.¶ They manure their gardens and fields. In the low and damp

this in his homeward journey, and describes it under the name of Urddhasthana, as 500 *le* from Ghazni. The old name of *Ke-pin* or Kophen, he preserves as that of the capital city *Hwo-pe-na*.—"Anc. Geog. of India," pp. 34, 37.—"Mém. sur les Cont. Occid.," tom. ii, p. 190.)

* It is difficult to identify this name. Possibly it may be a corrupt transcript of "Urddhasthana," the ancient name of Cabul; or it may be a distortion of the name "Ghazni."

† See "Journal of the Anthropological Institute," January, 1874, pp. 414, 415, 433.

‡ "The Scythian tribes who occupied the Caspian plain to the west of the Massagetæ, extending to the Oxus or even to the Jaxartes, in which case they must have blended with the Massagetæ, bore the general appellation of Dææ." (Wilson's "*Ariana Antiqua*," pp. 140, 141.)

§ "In Ariana they passed the mountains, and proceeding southwards, occupied the tract below the great lake wherein the Helmond terminates, which took from them the name of Sacastané (land of the Saka or Scyths) a name still to be traced in the modern 'Seistan.' Further to the east, they effected a lodgment in Kabul, and another in the southern portion of the Indus valley, which for a time bore the name of 'Indo-Scythia.'" (Rawlinson's "Sixth Great Oriental Monarchy," pp. 117, 118.)

|| "In the summer, the heat of Candahar is intense; the winter mild. In Cabul the summer is charming; but during the winter the cold is intense." ("Notes to accompany Mr Wyld's Maps of Central Asia and Afghanistan," p. 24.)

¶ According to the Chinese, the five grains are—hemp, millet, rice, wheat, and pulse. ("Chinese Reader's Manual," p. 316.) Mr Wyld says:—"There are, as in India, two harvests in Afghanistan: of these one is sowed in the autumn and reaped in the spring, the chief crops being wheat, barley, peas, and beans: in Western Afghanistan this is the most important. The autumn harvest on the contrary is the principal one in Eastern Cabul, the seed is sown in the spring, and gathered in the autumn; it consists of rice, a grain called bajra (*Holcus spicatus*) and Indian corn." Of Cabul he says:—"It is a most lovely landscape, the plain being refreshed with numerous streams brought from the Cabul river, and

ground they grow rice. In winter they eat raw vegetables. The people are ingenious in carving, ornamenting, engraving and inlaying; in building palaces and mansions; weaving nets, ornamental perforation and embroidery; and excel at cooking. They have gold, silver, copper and tin,* of which they make vessels, and expose them for sale. They have a gold and a silver currency.† On the obverse of their money is a man on horseback, and on the reverse a man's face.‡ The country produces the Indian ox, the buffalo, the elephant, great dogs, large apes, and the pea-fowl; also pearls of different kinds, coral, amber, rock crystal, vitreous ware, camels, and domestic animals the same as other nations.§

From the time that the Emperor Woo-te opened up communication with Ke-pin, the rulers of that kingdom, in view of the extreme distance, had considered themselves safe from the intrusion of a Chinese army. In this confidence the King Woo-t'ow-

covered with green fields, fringed by rows of poplars and willow trees; orchards and vineyards filled with fruit trees of every description; and gardens well laid out and stocked with flowers and useful vegetables. Large quantities of grapes and dried fruits are exported to all parts of Northern India." (*l.c.* pp. 28, 18.)

* "Iron exists in the Vaziris Hills, and in Fumuli; copper in the Asmai Koh to the West of Cabul; lead in the Hazara Mountains, at Ko-i-wardak near Ghuznee, and in Argandab; antimony at Shah Mahsud, north of Candahar; sulphur, near Herat and Seistan; zinc in the Zhobe valley; and nitre all over the country. Gold, too, is found in the river beds, and affords a precarious existence to the few hundreds who search for it." ("Notes to accompany Mr. Wyld's Maps," &c., p. 27.)

† We do not find any specimens of a gold coinage among the Sacæ rulers of Kabulistan; but *silver* coins are by no means rare. Seven or more specimens of *gold* coins are known of Kadphisis who is supposed to have reigned in B.C. 1, while a solitary *silver* coin of this monarch is the only known silver specimen of the Indo-Scythian dynasty.

‡ This description applies only to one reign, on the coins of which there is no name, but only the title of the monarch, thus ΣΩΤΗΡ ΜΕΤΑΣ ΒΑΣΙΛΕΥΣ ΒΑΣΙΛΕΩΝ—"Great King of Kings the Preserver." Wilson, who supposes them to have been issued in the first century of the Christian era, gives the figures of sixteen specimens, and remarks:—"There is no great variety in these coins, although they are infinitely numerous, and are, with very few exceptions, of copper, and these latter are found, to use Mr. Prinsep's expression, 'by bagfuls' at Beghrum, in many of the topes in the Panjab, and even in Central India. . . . The type on one face is universally the mounted monarch, as on the coins of the preceding princes. On the other we have in a few instances the figure of a man in a long robe, apparently a priest, with a fire altar; but the device on those coins that are so numerous is the head of the king, occasionally, though rarely, with a helmet, but in general with either a kind of turban, or his hair dressed in a peculiar manner." No doubt the Han author had these in view when he wrote his account of Ke-pin, and his description is sufficiently accurate; but the pretended figures of foreign coins, found in Chinese numismatical treatises, are worthless caricatures, mere productions of the imagination of some Chinese, to illustrate the descriptions given in the dynastic histories. (*See "Ariana Antiqua,"* p. 332.)

§ "The horse, camel, cow, buffalo, sheep, goat, mules, and asses are the principal animals of the country." ("Notes to accompany Mr. Wyld's Maps," etc., p. 27.)

laou* on several occasions put the Chinese envoys to death. On the death of Woo-t'ow-laou, his son, who succeeded to the dignity, sent an envoy with offerings to China; when Wān Chung, the Protector General at the barrier, was sent to escort him home. The King again wished to take Wān Chung's life; but the latter becoming aware of his intention, entered into a plot with the King of Yung-keu's son, Yin-mūh-foo, which resulted in an attack on the country, when the King was killed, and Yin-mūh-foo installed as King of Ke-pin, and received the seal and ribbon of investiture from China.

Afterwards the Military Marquis Chaou Tih, who was sent to Ke-pin, managed to get on bad terms with Yin-mūh-foo, when the latter put the felon's collar on the envoy, killed his assistant and attendants, more than seventy persons in all, and then sent an envoy with a letter to the Emperor, acknowledging his transgression. But the country being among the unregistered and impracticable regions, the Emperor Yuen-te discharged the envoy; communication being cut off by the Hindu Cush.

In the time of the Emperor Ching-te (B.C. 32-7) Ke-pin again sent an envoy with offerings and an acknowledgment of guilt. The supreme board wished to send an envoy with a reply, to escort the Ke-pin envoy home; but Too Kin addressed the Generalissimo Wang Fung to the following effect:—"Formerly Yin-mūh-foo, the King of Ke-pin, who was instated by China, ended by perversely rejecting our authority. Now there is no greater manifestation of virtue than for a ruler of a kingdom to treat the people as his children; and there is no greater sin than to detain and murder an envoy. Hence although omitting to requite favours they have no fear of chastisement; for they know that they are at such an extreme distance that our troops cannot reach them. When they have anything to ask, they come with humble expressions; but when they do not want anything, they are proud and insulting. They cannot by any means be brought to cherish the feeling of submission. Whenever China enters into liberal correspondence with the barbarian tribes, and we are pleased to

* The coins of Spalyrus, the Saca King of Kophen, bear the inscription ΣΠΑΛΥΡΙΟΣ ΔΙΚΑΙΟΥ ΑΔΕΛΦΟΥ ΤΟΥ ΒΑΣΙΛΕΩΣ *Spaluros Dikaïou Adelphou tou Basileôs*. He is here stated on the coin to be "brother" to the king, but Wilson thinks "it is not impossible that the 'brother' was the king *de facto*, although he left for a season the title to Palirisus." As we do not find a name among the Saca princes of Κοι' seems probable that the Chinese may as the name of this prince. Truly the Chinese transcript is a nearer phonetic approach than the Arianian *Alabaraputosa* found on the same coins, and which Wilson says, "looks as if it was a blundering attempt to represent the Greek term ΑΔΕΛΦΟΣ." The date given is B.C. 73, which would apparently synchronize with the Chinese narrative. (See "*Ariana Antiqua*," pp 315, 316.)

attend to their requests, we receive their approaches with intimacy, and they act as brigands. Now the dangerous passes of the Hindu Cush cannot be traversed by the people of Ke-pin. A cringing attitude is no evidence of the pacification of the Western regions; and although they are not annexed to the empire, yet they are not a source of danger to the cities and suburbs. Formerly those we held intimate relationship with repudiated the token of authority, and spread vice and anarchy through the Western regions; so that intercourse was found to be impracticable. Now they come professing penitence, and do not enter into an intimate relationship. Their dignitaries who present offerings are all mean men carrying on commerce. They wish to open up commercial relations for the sake of the trade; and the offerings are a mere pretence. Therefore if we take the trouble to send an envoy to escort them to the Hindu Cush, I fear we shall commit an error, and find ourselves deceived. Whenever an envoy is sent to escort a guest, precautions must be taken to protect him against the attacks of brigands.

“From Pe-shan southward there are four or five kingdoms not attached to China. With only a hundred men to keep a lookout, and to beat the five night watches for self-protection, they will be at times exposed to attacks from robbers, carrying off their asses and cattle bearing provisions: and will thus be rendered dependent on these countries for food, for which they must make some requital. The countries may be small and poor, and unable to furnish food; or the inhabitants may be cruel and crafty and refuse to give, even intercepting them at the boundary. The Chinese Commission will in such circumstances be left to starve among the hills and valleys, begging food to sustain life, with no means of obtaining it. In some ten or twenty days men and animals will die in the desert, and be never more heard of. Again, on passing the Great Headache Mountain, the Little Headache Mountain, the Red Land, and the Fever Slope, men's bodies become feverish, they lose colour, and are attacked with headache and vomiting; the asses and cattle being all in like condition. Moreover there are three pools with rocky banks along which the pathway is only 16 or 17 inches wide for a length of some 30 *le*, over an abyss of frightful depth where the travellers whether on horse or afoot are all attached, and lead each other by ropes. After more than 2,000 *le* the Hindu Cush is reached; more than half the cattle having perished by falling down the chasms, their bodies lying scattered about and dashed to pieces. Men lose their grasp, and they are unable to save each other. In fact, viewing the dangers of these precipitous gorges, the difficulties

are beyond description. The sage kings divided the empire into nine departments and instituted regulations for the five tenures. Applying themselves to secure prosperity in the interior, they sought nothing from abroad. Now in sending an envoy to carry out the supreme commission by escorting the barbarian traders, you weary out the host of officials in passing through a dangerous and difficult road; thus suspending and degrading the trustworthy in the performance of a useless service. This is not a far-sighted policy. The envoy having already received his credentials, let him proceed as far as Pe-shan and then return." To this Wang Fung replied:—"According to your words, it is certainly profitable to Ke-pin if we grant them a market for their commerce; while they only send an envoy once in several years."

*Woo-yih-shan-le.**

The capital of the kingdom of Woo-yih-shan-le† is distant from Chang-gan 12,200 *le*. The State is not under the control of the Governor General. The numbers of families, of the population, and of trained troops are all those of a great kingdom. The seat of the Governor General lies north-east at a distance of sixty days' journey. The country joins Ke-pin on the east, Po-taou (Bactria) on the north, and Le-keen‡ and Teaou-che§ on the west. After a journey of about a hundred days, the kingdom of Teaou-che is reached, bordering on the Western Sea.|| The climate there is hot and damp, and rice is cultivated. There are large birds, with eggs in size like a pitcher. The people are very numerous and are often under petty chieftains, subject to the Parthians, who consider foreigners clever at jugglery. There is a tradition among the Parthian elders about the Dead water,¶ and the Mother of the

* The positions laid down for this kingdom clearly point to Aria of the ancients, represented by the modern Khorassan.

† This is very suggestive of the word "Alexandria," the name of a city which had been repaired by Alexander the Great. The indications of the classical authors lead to the belief that it stood on the site of modern Herat and may have been the capital of the country about the beginning of the Christian era. (See "*Ariana Antiqua*," pp. 151, 152.)

‡ This appears to be the kingdom of the Seleucidæ, represented by Syria.

§ The country of the Tajiks, or ancient Persians.

|| This passage involves some difficulty. Teaou-che is generally admitted to represent the Tajiks or ancient Persians; but a hundred days' journey west from Herat carries one far beyond the limits of Persia. The most satisfactory conclusion—as Dr. Bretschneider has shown—is, that Syria is the country here alluded to; and the description generally agrees with this identification. The Western Sea in this case would be the Mediterranean. (See "*Notes and Queries on China and Japan*," vol. iv, pp. 58, 59.)

¶ Probably the "Dead Sea."

Western kings* in Teaou-che, but they have never been seen. They say that from Teaou-che, a sea voyage of about a hundred days westward brings one near the place where the sun sets. The burning heat of the country of Woo-yih is exceptionally fierce. They have herbs and trees, domestic animals, the five kinds of grain, fruits, vegetables, food and drink, palaces and dwelling-houses, bazaars, circulating medium, military weapons, gold, pearls, and such like, all the same as in Ke-pin. They have also excellent peaches. The lion and the buffalo are found there, and by custom it is deemed laudable to kill these without mercy. On the obverse of their money there is only a man's head, and on the reverse is a figure of a man on horseback. They ornament their staves with gold and silver. Being extremely distant from China, an envoy rarely arrives. From the Yuh Gate and the Yang barrier, the southern road passing Shen-shen, tends southerly to Woo-yih-shan-le, which is the terminus of the southern road. Thence proceeding north, Parthia lies on the east.

Gan-seih (Parthia.)†

The capital of the kingdom of Gan-seih is the city of Fan-tow, distant from Chang-gan 11,600 *le*. It is not under the control of the Governor General. The country joins K'ang-keu‡ on the north, Woo-yih-shan-le§ on the east, and Teaou-che|| on the west. The soil, climate, productions, and customs of the people are the same as those of Woo-yih and Ke-pin. They also have a silver coinage, with the king's head on the obverse, and a woman's head on the reverse.¶ When the king dies, they immediately cast new coins. The country produces ostriches. They have several hundred cities great and small. It is a kingdom of the largest size, being several thousand *le*

* It is not improbable that we have here an allusion to Lot's wife; the tradition of whose calamitous fate would naturally linger in after ages among the Moabites and Ammonites, and their descendants.

† That Gan-seih designates the ancient kingdom of the Arsacidæ seems scarcely to admit of a doubt.

‡ Sogdiana.

§ Khorassan.

|| Persia.

¶ This somewhat singular fact is remarkably corroborated in the case of the Parthian monarch, Phraataces, who came to the throne B.C. 2. Engravings of two of his coins are given in the "International Numismata Orientalia;" and Professor Rawlinson gives a wood-cut of one with the following remarks:—"The coins of Phraataces have on one side his head; which is being crowned by two Victories; on the other the head of Musa [his mother], with the legend ΜΟΥΣΗΣ ΒΑΣΙΛΙΣΣΗΣ ΘΕΑΣ ΟΥΡΑΝΙΑΣ." Referring to the fact of this king having placed the effigy of Musa on the coins, Rawlinson observes:—"It is perhaps doubtful whether Phraates IV. [predecessor of Phraataces] had not done the same in his latter years as Mionnet and Mr. Lindsay imagine." ("The Sixth Great Oriental Monarchy," p. 220.)

square.* As the country extends to the Wei (Oxus) river their traders traverse the adjoining kingdoms† both by land and water. They write on skins in horizontal lines, in which manner they keep their records.‡

When the Emperor Woo-te first sent an envoy to Gan-seih, the King commanded a general to take 20,000 cavalry to meet him at the eastern border. The eastern border is several thousand *le* distant from the metropolis. Proceeding northward, they passed several tens of cities on the way, all the people of which were allied to each other. On this occasion the King sent an envoy to follow the Han envoy home to China. He took with him ostrich eggs and Le-keen jugglers, which he presented as offerings, and with which the Emperor was greatly delighted. To the east of Gan-seih is the country of the Ta Yüē-she.

Ta Yue-she (Massagetae).

The capital of the kingdom of the Ta Yüē-she is the city of Keen-she, distant from Chang-gan 11,600 *le*. It is not under the control of the Governor General. The kingdom contains 100,000 families, comprising a population of 400,000, with 100,000 trained troops. The seat of the Governor General lies to the east, at a distance of 4,740 *le*. To Parthia on the west is a distance of forty-nine days' journey. The country joins Ke-pin on the south. The soil, the climate, the productions, the customs of the people, and the currency, are all the same as those of Gan-seih. They have the single-humped camel (dromedary). The Ta Yüē-she are a wandering nation,

* Professor Rawlinson gives the dimensions of Parthia proper as "from east to west a distance of 320, and from north to south of nearly 200 miles." This would amount to about 1,920 by 1,200 *le*. (See "The Sixth Great Oriental Monarchy," p. 1.)

† "There was a considerable trade between Parthia and Rome, carried on by means of a class of merchants." If they traded with Rome, it can scarcely be doubted that the commerce extended also to the Transoxianian nations. (See "Sixth Great Oriental Monarchy," p. 425.)

‡ "Though the Parthians had, so far as we can tell, no native literature, yet writing was familiar to them, and was widely used in matters of business. Not only were negotiations carried on with foreign Powers by means of despatches, but the affairs of the empire generally were conducted by writing. A custom-house system was established along the frontier, and all commodities liable to duty that entered the country were registered in a book at the time of entry, by the custom-house officer. In the great cities, where the Court passed a portion of the year, account was kept of the arrival of strangers, whose names and descriptions were placed upon record by the keepers of the gates. The orders of the Crown were signified in writing to the satraps; and they doubtless corresponded with the Court in the same way. In the earlier times the writing material commonly used was linen; but shortly before the time of Pliny, the Parthians began to make paper from papyrus, which grew in the neighbourhood of Babylon, though they still employed in preference the old material." ("Sixth Great Oriental Monarchy," pp. 424, 425.)

moving from place to place for the convenience of their flocks and herds, the same as the Heung-noo.* They have more than a hundred thousand men skilled in the use of the bow;† and in former times considered themselves strong enough to treat the Heung-noo with contempt. Originally they lived between Tun-hwang and Ke-leen, when Maou-tun Shen-yu‡ attacked and subdued them. Laou-shang Shen-yu§ killed the King of the Yuě-she, and converted his skull into a drinking-bowl. The tribe then removed to a distance, passed Ta-wan, and attacked the Ta-hea on the west, reduced them to vassalage, and established their metropolis on the north of the Wei (Oxus) river, where the King held his Court. A small section, who were unable to leave, fortified themselves at the southern mountains, and were named by the Keang the Seaou Yuě-she. The Ta-hea were originally without a Chief Paramount; and were accustomed to set up petty chiefs over their cities. But the people were weak and afraid to engage in war. Hence when the Yuě-she removed into their country they all became their vassals, and they presented a united petition to the Chinese envoy. They have five Heih-hows. One is called the Heih-how of Heu-mieh; his capital being the city of Ho-mih, distant from the Governor General 2,841 *le*, and from the Yang barrier 7,802 *le*. The second is the Heih-how of Chwang-me; his capital being the city of Chwang-me, distant from the Governor General 3,741 *le*, and from the Yang barrier 7,782 *le*. The third is the Heih-how of Kwei-seang; his capital being the city of Hwo-tsaou, distant from the Governor General 5,940 *le*, and from the Yang barrier 7,982 *le*. The fourth is the Heih-how of Heih-tun; his capital being the city of Po-maou, distant from the Governor General 5,962 *le*, and from the Yang barrier 8,202 *le*. The fifth is the Heih-how of Kaou-foo; his capital being the city of Kaou-foo, distant from the Governor General 6,041 *le*, and from the Yang barrier 9,283 *le*. These five Heih-hows are all dependents of the Ta Yuě-she.

K'ang-keu (Sogdiana).||

The King of K'ang-keu likes to hold his Court during winter

* Wilson, speaking of the Massagetæ, says:—"The character of the countries which they occupied seems to have been in all ages essentially the same—extensive steppes and plains of sand, interspersed at intervals only with water and verdure, and compelling the inhabitants to lead a migratory life, in quest of pasture for the cattle on which they themselves chiefly subsist." ("Ariana Antiqua," p. 138.)

† "They were good riders and excellent archers." ("Sixth Great Oriental Monarchy," p. 119.)

‡ He ruled from B.C. 209 to 174.

§ From B.C. 173 to 160.

|| The identification of K'ang-keu with Sogdiana has been generally accepted.

in the country of Yuě-nieh at the city of Pe-teen, which is distant from Chang-gan 12,300 *le*. The kingdom is not under the control of the Governor General. From the country of Yuě-nieh to the king's summer residence inside the border is a distance of seven days' journey on horseback. Thence to Chang-gan is 9,104 *le*. The kingdom contains 120,000 families, comprising a population of 600,000, with 120,000 trained troops. The seat of the Governor General lies to the east 5,550 *le*. Their customs are the same as those of the Ta Yuě-she. On the east they paid a forced servitude to the Heung-noo.

In the time of the Emperor Seuen-te (B.C. 73-49), when the Heung-noo were in a state of anarchy, and five Shen-yu were all fighting against each other, China interposed its influence to set up Hoo-han-seay Shen-yu; and Che-che Shen-yu being incensed against the Chinese, put their envoy to death; and then moving westward (B.C. 49) settled in K'ang-keu.

After this the Governor General Kan Yen-show and the Assistant Deputy Protector Ch'in Tang brought the Woo-ke Deputy Protector with the troops of the various kingdoms of the Western regions to K'ang-keu and exterminated the power of Che-che Shen-yu; the details regarding which may be found in the Memoirs of Kan Yen-show,* and Ch'in Tang.† This took place in the year B.C. 36.

In the time of the Emperor Ch'ing-te (B.C. 32-7), the Prince

Bretschneider remarks:—"It seems however, that the country of *K'ang kü*—first mentioned in the 'History of the Anterior Han'—before our era, included Sogdiana; for in the 'History of the Northern Wei (386-558),' a country in the west, *K'ang*, is described, and it is further stated there that the people of *K'ang* are a branch of the *Kang-kü* of the Han period. In the 'History of the T'ang,' chap. cclviii, *b*, the kingdom of *K'ang* is again spoken of; and among the synonyms given for the same country we find *Sa-mo-kien*, which is intended for Samar-cand." ("Notices of the Mediæval Geography and History of Central and Western Asia," p. 163.)

* The biographical notice of this officer is summed up briefly as follows:—"Kan Yen-show, who bore the cognomen Keun-hwang, was a native of the district of Yuh-che (now Gan-hwa) in the prefecture of Pih-t'e (now K'ing-yang in the province of Kansuh). Being a scion of a good family he excelled in horsemanship and archery in his youth, and was made a member of the Imperial body-guard. In such athletic exercises as throwing the stone he far outstripped his compeers; and upon one occasion he leaped over the two-story guard-house. Consequent on this feat he was appointed fugleman at the military competitive examinations. By his talents, strength, and amiability he gradually rose in the service, till he became Governor of Leaou-tung. Instead of availing himself then of his official carriage, he travelled on horseback like a general, and was exemplary in his patronage. In time Kan Yen-show was made Secretary and Grand Adviser, and was appointed Governor-General of the Western regions and Cavalry Protector General; when, in concert with the Assistant Deputy Protector, he killed and beheaded Che-che Shen-yu, and was promoted Marquis of E-ching. After his death he was designated the Robust Marquis. The viceregal dignity descended to his great-grandson, till the defeat of Wang Mang, when the line was cut short." ("Tseen Han Shoo," book lxx, fol. 3, 4.)

† See Appendix A.

of K'ang-keu sent his son to China as a hostage, with an offering of tribute ; but the country being at such an extreme distance, the Prince was only haughty and insolent, and refused to look up to China like the other nations. The Governor General Kwo Shun several times addressed the throne, saying :—"Originally when the Heung-noo attained their highest prosperity it was not on account of their connection with Woo-sun and K'ang-keu ; and when they came calling themselves menials, it was not because they had lost these two kingdoms. Although China has received hostage princes from all these, yet the three kingdoms impose burdens on each other, and neglect intercourse with the empire as of old. They also keep watch, waiting a convenient time for demonstration. When near they cannot be taken into close confidence ; when distant they cannot be made use of as vassals. Applying this to present circumstances, the connection with Woo-sun by marriage has never turned out of any advantage to us ; but on the contrary has been a cause of trouble to China. However, Woo-sun having formerly formed this connection, and now both that nation and the Heung-noo style themselves vassals, it is not right that they should be repelled. But K'ang-keu is so proud and crafty that they will not pay due honour to our envoys. When the Governor General's official reached their country he was set below the envoys from Woo-sun and the other countries. When the King and his nobles have finished their repast, the Governor General's official is then allowed to swallow a morsel. Hence there is no room for boasting to the neighbouring kingdoms of these forming provinces of the empire. According to this estimate, why do they send their sons to Court as hostages ? The reason is that they wish to deceive us by specious words in order to be allowed to trade. The Heung-noo and all the great barbarian kingdoms now render perfect service to China ; but it is reported that K'ang-keu does not pay homage ; and moreover that it has sent an envoy to the Shen-yu, as an act of self-humiliation. Their hostage prince ought to be sent back, and an envoy should never be sent to them again, in order to show that the house of Han does not hold intercourse with kingdoms which ignore the rules of etiquette. The small regions of Tun-hwang and Tsew-tseuen and the eight kingdoms on the southern road give food to the envoys passing to and fro, including men, horses, asses and camels ; all which becomes very severe on them, exhausting their supplies of rice ; but to meet and escort those of proud, crafty, and extremely distant nations, is by no means a wise policy. In opening up a fresh intercourse, China treats men from afar with the greatest liberality ; but in the end has to curb and restrain them, yet she does not cast them off."

To the north-west of K'ang-keu, about 2,000 *le* distant, is the kingdom of Yen-tsae,* with more than 100,000 bowmen; having the same customs as K'ang-keu, on the border of a great marsh without banks, which is the Northern Sea (Caspian). K'ang-keu has five viceroys. One is called the viceroy of Soo-heae; his capital being the city of Soo-heae, distant from the Governor General 5,776 *le*, and from the Yang barrier 8,025 *le*. The second is called the viceroy of Foo-mih; his capital being the city of Foo-mih, distant from the Governor General 5,767 *le*, and from the Yang barrier 8,025 *le*. The third is called the viceroy of Yu-nieh; his capital being the city of Yu-nieh, distant from the Governor General 5,266 *le*, and from the Yang barrier 7,525 *le*. The fourth is the viceroy of Ke; his capital being the city of Ke, distant from the Governor General 6,296 *le*, and from the Yang barrier 8,555 *le*. The fifth is called the viceroy of Gaou-kéen; his capital being the city of Gaou-kéen, distant from the Governor General 6,906 *le*, and from the Yang barrier 8,355 *le*. All these five are viceroys of K'ang-keu.

Ta-wan (Fergana).†

The capital of the kingdom of Ta-wan is the city of Kwei-shan,‡ distant from Chang-gan 12,550 *le*. The kingdom contains 60,000 families, comprising a population of 300,000, with 60,000 trained troops, a Viceroy, and a National Assistant Prince. The seat of the Governor General lies to the east at a distance of 4,031 *le*. To the city of Pe-teen in K'ang-keu on the north is 1,510 *le*. To the Ta Yuě-she on the south-west is 690 *le*. The country joins K'ang-keu on the north, and the Ta Yuě-she on the south.§ The soil, climate, productions, and customs of the people are the same as those of the Ta Yuě-she and Gan-seih. Round about Ta-wan they make wine from grapes. Wealthy people store up as much as 10,000 stone and over in their cellars, and keep it for several tens of years without spoiling. The people are fond of wine, and the horses are fond of *medicago sativa*. There are more than seventy other cities in the country. There is a numerous breed of excellent horses which perspire blood. It is said that this breed is from the strain of a supernatural stallion. When Chang Keen first told the Emperor about them, the monarch sent an envoy with a thousand pieces of gold and a golden horse, in order to obtain some of these excellent horses. But the King of Ta-wan, con-

* The Asi.

† This corresponds to the present Khanate of Khokand.

‡ The most ancient capital of Fergana recorded by Mohammedan writers is Akhsi. Possibly Kwei-shan may be a mutation of the same name.

§ The "She ke" says "west."

sidering that on account of its extreme distance China could not send an army there, and in view of the great value he attached to these precious horses, refused to part with them to China. The envoy having been betrayed into the use of some unguarded expressions regarding Ta-wan, the King had him put to death, and took possession of his treasure. The Emperor thereupon sent the Urh-sze* General Le Kwang-le in command of an army numbering over 100,000 from first to last, which attacked Ta-wan for four successive years, till at last the natives beheaded the King Wuh-kwa, and presented an offering of 3,000† horses. The Chinese army then returned. The details of these transactions are found in the "Memoir of Chang Këen."‡ The Urh-sze general having secured the decapitation of the King, set up a noble of the country, who had previously received benefits from China—by name Mei-tsae—in his place.

More than a year after this the nobles of Ta-wan charged Mei-tsae with having, by his sycophancy, caused the butchery of their compatriots, and uniting together, they put Mei-tsae to death, and set up Chen-fung, the younger brother of Wuh-kwa, as king, who sent his son to Court as a hostage. China consequently sent an envoy with gifts, to secure and pacify them. More than ten missions were subsequently sent to the various kingdoms west of Ta-wan, seeking for rarities; and the fame of the power of China, which had subdued Ta-wan, was thus spread far and near. Chen-fung, the King of Ta-wan, entered into a treaty with China, by which he agreed to send an offering of two celestial horses every year. The Chinese envoy selected and took back with him plants of the grape and *medicago sativa*. The Emperor now having a numerous stud of celestial horses, and the ambassadors flocking in numbers from foreign countries, having also planted the grape and the *medicago sativa*, he left his palace and took up his residence in a separate house, to have a distant look-out upon his possessions. From Fergana westward to the kingdom of Parthia, although their language is somewhat different, yet the resemblance is so great that they can make themselves intelligible to each other. The people of Ta-wan have deep sunken eyes, and bushy beards and whiskers. They are clever traders,

* Urh-sze was the name of the city where the King of Fergana kept the famous horses. The name is strongly suggestive of Ush or Uzgend, a place on the high-road through Fergana. "The city is now in ruins, and from their extent it may be concluded that the ancient city was very large." (Bretschneider's "Notices of the Mediaeval Geography and History of Central and Western Asia," p. 157.) On Wyld's Map of Central Asia, the name is written Osh.

† In the "Memoir of Ch'in Tang," the number of horses presented on this occasion is said to be thirty. Three thousand is probably a misprint.

‡ See Appendix B.

and dispute about the division of a farthing. Women are honourably treated among them, and their husbands are guided by them in their decisions. Silk and varnish are used all over the country. They did not understand casting iron implements till a Chinese envoy, having lost his troops, submitted to them, and taught them the art of casting, when they made new military weapons. They applied the Chinese gold and silver to make vessels, instead of using them for state presents. From Woo-sun westward to Gan-seih, the several kingdoms are all near the country of the Heung-noo. The Heung-noo having oppressed the Yüē-she, when the Heung-noo envoy came to Ta-wan with a letter from the Shen-yu, he was entertained and forwarded, as they dared not detain and punish him. But when the Chinese envoy arrived, he could not obtain food, nor purchase cattle, nor secure the accommodation necessary for his horses till he had delivered his presents. The reason of this was that China was so far distant, and possessed so much wealth, that the people of Ta-wan would only give them what they wanted on fair commercial considerations. After Hoo-han-seay Shen-yu paid court to China, then China was honoured by all the kingdoms.

*Taou-hwae.**

The capital of the kingdom of Taou-hwae is distant from Chang-gan 11,080 *le*. The kingdom contains 700 families, comprising a population of 5,000, with a thousand trained troops.

Heu-tun.†

The capital of the kingdom of Heu-tun is in the Meaou-fei valley, on the west of the Tsung-ling mountains, distant from Chang-gan 10,210 *le*. The kingdom contains 358 families, comprising a population of 1,030, with 480 trained troops. The seat of the Governor General lies to the east, at a distance of 3,121 *le*. To the valley of Yen-tun in Keuen-tüh in the same direction is 260 *le*. To the kingdom of Ta-wan on the north-west is 920 *le*. To the Ta Yüē-she on the west is 1,610 *le*. The customs of the people and their clothing are of a class with those of Woo-sun. They move about for the convenience of

* From the very scanty indications given, it is impossible to identify this locality. The distance from China would lead us to believe that it must be somewhere eastward of and not far distant from Fergana. The name is somewhat suggestive of the ancient Tochari. Is it possible that a section of that people may have localised the name to this small territory?

† No clue presents itself to the identification of this small territory, which lay apparently at the western extremity of the Kashgar basin.

their flocks and herds, according to the supply of pasture and water. They are originally one of the old Sae tribes.

*Keuen-tüh.**

The capital of the kingdom of Keuen-tüh is in the valley of Yen-tun, distant from Chang-gan 9,860 *le*. The kingdom contains 380 families, comprising a population of 1,100, with 500 trained troops. The seat of the Governor General lies to the east 2,861 *le*. Soo-lih also lies to the east. To the south is the uninhabited region of the Tsung-ling mountains. Ascending the Tsung-ling mountains on the west is Heu-tun. North-west to Ta-wan is 1,030 *le*. On the north the country joins Woo-sun. The dress of the people is of a class with those of Woo-sun. They move about the Tsung-ling mountains, where they can find water and pasture for their flocks and herds. They are originally one of the Sae tribes.

Sha-keu.†

The capital of the kingdom of Sha-keu is the city of Sha-keu, distant from Chang-gan 9,950 *le*. The kingdom contains 2,339 families, comprising a population of 16,373, with 3,049 trained troops, a National Assistant Marquis, a Left General, a Right General, a Left Knight, a Right Knight, an Anticipater of Se-yay raids, two Protectors General, and four Interpreters-in-chief.

The seat of the Governor General lies to the north-east at a distance of 4,746 *le*. Soo-lih is 560 *le* to the west.‡ P'oo-le is 740 *le* to the south-west.§ There is a mountain of iron in the country which produces blue jade.

In the time of the Emperor Seven-te (B.C. 73–49), the Imperial Princess|| of Woo-sun had a little son named Wan-néen, who was tenderly loved by the King of Sha-keu. The King of Sha-keu died without a son, Wan-néen being in China at the time. The people of Sha-keu determined to submit the choice of a new king to China, and wishing at the same time to be on good terms with Woo-sun, they forwarded a letter to the Emperor, requesting to have Wan-néen made King of Sha-keu.

* The indications in the text would lead us to look for this small territory to the west of Kashgar, on the high road to Uzgend, somewhere about the 74th degree of longitude.

† Chinese geographers of the present dynasty identify this with Yarkand.

‡ The account of Soo-lih makes Sha-keu lie to the south 560 *le*. Probably the truth is an average between the two.

§ The account of P'oo-le makes Sha-keu lie to the east 540 *le*. The present text seems the more probable.

|| This was Keae-yew, the daughter of the King of Tsou, who was sent by the Emperor in marriage to Keun-sew-me the Ch'in-tso, and after his death was married to Ung-kwei-me, his cousin and successor.

kwän. Irate at China for extending its protection to Hoo-han-seay, and not assisting himself, he treated the Chinese envoy Keang Nae-che and his suite with severity and insult.

In B.C. 45, Che-che sent an envoy with offerings, and availed himself of the occasion to request that his son might be excused attendance at Court, as he wished his service in the administration. When the Chinese were deliberating on sending the Guard Cavalry Leader Kūh Keih to escort Che-che's son to his home, the Censor and Great Statesman Kung Yu, and the Professor K'wang Hāng said:—"From the *Ch'un ts'ew* history we know that if the empire is to acquiesce in the wishes of the barbarian races, concession cannot be limited to a single instance. Now Che-che is not drawing towards our civilizing influence from disinterested motives. His residence being so extremely distant, the envoy should be ordered to escort his son beyond the boundary and then return." At this point Kūh Keih presented a memorial to the following effect:—"China professes to exercise an unlimited control over the barbarian races. Now having entertained the chief's son for ten years past, a deep and salutary impression has been produced. Is it wise to efface this impression by refusing to send an envoy? Should we merely escort him for a short distance to the boundary and return, like sending off a petty official whom we do not desire longer to entertain, we shall quite extinguish his attachment, and he will give no heed to the Imperial will. It is not prudent to abandon the advantage gained by previous favours, and provoke resentment in the future. The Imperial counsellors consider that there has been no retaliation for the treatment Keang Nae-che received at the hands of Che-che; but they should know that the severities to which our representatives were subjected will naturally produce shame on the part of the offender, which is a natural prelude to becoming a vassal, and when the vassal is oppressed with anxious cares we shall happily succeed in strengthening the authority of China. When exhibiting the illustrious and sacred decree, holding forth the most liberal favours, he will not dare to act a deceitful part. If we cherish birds and beasts, and treat a vassal with no regard to principle, then the Shen-yu—who has been culpable of a great crime—will certainly abscond and take up his residence in a still more remote region; nor will he dare to approach the frontier. Let one envoy be sacrificed to secure the peace of the people. Such is State policy, and such is your servant's desire. He wishes to escort the party to the Court of the Shen-yu." The Emperor laid this memorial before his Court for consideration. Kung Yu again contended that if Kūh Keih went, the empire would certainly have cause to repent it, for it would give rise to troubles. He dissuaded compliance with the proposal. The Right General Ma Fung-she, however, supported the projected escort, and the Emperor gave his sanction. The embassy having been thus decided on, in due time the party reached Che-che's settlement; but the latter was in no mood to conciliate the Chinese, and giving vent to his wrath, he ultimately put to death Kūh Keih and all his retinue.

Knowing that he had thus rendered himself obnoxious to China, and hearing that Hoo-han-seay was becoming more formidable, he fled to the west, and settled in K'ang-keu. There the king of the country gave his daughter in marriage to Che-che, while he in turn gave his daughter in marriage to the King of K'ang-keu. The K'ang-keu treated Che-che with great honour, wishing by means of his prestige to intimidate the other nations. On several occasions Che-che borrowed K'ang-keu troops to attack Woo-sun. He advanced a long way into that country, to the city of Chih-küh, slaughtering and carrying captive the people, and driving off their animals. The Woo-sun troops did not dare to pursue them to the western border, the country being waste and without inhabitants for 1,000 *le*. Che-che now began to assume for his domain the status of a great kingdom, being renowned for his dignity and loaded with honours: and being furthermore haughtily elated by his victories, he refused to render the rites due to the King of K'ang-keu. In the consequent misunderstanding, Che-che's anger rose to that extent that he put to death the daughter of the K'ang-keu king, some of his nobles, and several hundreds of the people, some of whom he dismembered, and threw their bodies into the Too-luy River. He then set the people to work to build a city, having 500 men at it daily for two years, till it was finished. He also sent envoys to chide Hō-soo (the Asi), Ta-wan (Fergana), and other countries into sending yearly offerings, which they did not dare to withhold. China sent three envoys to K'ang-keu for the dead bodies of Kūh Keih and his followers; but they were oppressed and insulted by Che-che, who refused to receive the Imperial rescript, and through the Governor General forwarded a letter to the throne, saying:—"Wretched and miserable as I am, it is my desire to become attached to the empire, submitting to its plans, and I will send my son to reside at the Chinese Court." This was said in haughty raillery.

In B.C. 36, Ch'in Tang went to the Western regions with Kan Yen-show. Now Ch'in was a man of indomitable bravery, and was fertile in comprehensive designs, having an abundance of deep-laid stratagems at his command. He was, moreover, fond of adventure. On passing any city, town, hill, or river, he was accustomed to ascend some eminence to get a view of the position. When he had received his foreign commission, he took counsel with Kan Yen-show, saying:—"The Northern and Eastern barbarian races are naturally disposed to submit to the larger tribes. Originally the Western regions belonged to the Heung-noo. Now the fame of Che-che Shen-yu's dignity is spread far and wide. He insultingly threatens Woo-sun and Ta-wan, and is constantly scheming for their subjection to K'ang-keu. Should he get possession of these two kingdoms, attack E-leih on the north, take Gan-seih on the west, and push back the Yuē-she and Woo-yih-shan-le on the south, in a few years all the settled kingdoms will be in danger. His people are active, fearless, and fond of fighting: and having obtained several victories, if they are much longer tolerated they will certainly become the scourge of the Western regions. Although

Che-che lives at an extreme distance, yet the barbarian races have no impregnable cities or strongly defended fortresses. If we take the available troops from the military colonies, and urge on all the forces from Woo-sun straight up to his city, should he take to flight he will find no asylum to receive him: or should he stand on the defensive he will be unable to protect himself: and so by one morning's work we shall achieve a merit that will be remembered for a thousand years." Kan perfectly agreed with these suggestions, and wished to memorialise for permission to act on them. Ch'in however replied:—"When the Emperor holds a consultation with the dukes and high Ministers about any scheme of great importance, if it does not commend itself to the whole assembly, it will certainly not be carried out." Kan, however, still persisted in postponing action. It happened shortly after this that he was laid aside by a protracted sickness: when Ch'in took upon himself single-handed to call out the troops of the settled kingdoms, and the Woo-ke Deputy Protector of Keu-sze, with the trained contingents of the military colonies. When Kan heard of these proceedings he rose in excitement, and wished to put a stop to them. Ch'in then in wrath laid his hand on his sword, and said to Kan indignantly:—"The great body of the troops are already assembled. Menial! would you throw an obstacle in the way?" Kan eventually assented. The forces were gathered in brigades, and arranged in ranks as usual, with the additional companies of the Expanding Dignity, the White Tiger, and the United Cavalry, the Chinese and foreign troops together forming an army of over 40,000. Kan and Ch'in then memorialised the throne, inculcating themselves, and stating the particulars of the military enterprise, in which they had ventured to act on their own responsibility. The same day they called out the army, dividing the troops by ranks, and separating them into six companies. Three of the companies went by the southern road, across the Tsung-ling Mountains, following the path through Ta-wan. The three other companies, which were under the personal command of the Governor General, started from the kingdom of Wan-suh, advanced by the northern road to Chih-küh, crossed Woo-sun, and passed over the border of K'ang-keu, to the west of the Teen Lake. The assistant King of K'ang-keu, named Paou-teen, had made a raid at the head of several thousand horsemen on the country east of the city of Chih-küh, killing and taking captive more than a thousand of the Great Kwän-me's subjects, and carrying off immense droves of cattle. Subsequently, coming up with the rear of the Chinese army, they made a serious plundering attack on the baggage train. Ch'in now giving the reins to his foreign troops, they killed 460 of the enemy, recovered 470 of the people that had been carried off, and delivered them back to the Great Kwän-me: but used the horses, oxen, and sheep as food for the army. They also took one of Paou-teen's nobles named E-noo-tüh, and advanced beyond the eastern border of K'ang-keu; but the troops were restrained from acts of brigandage. Ch'in then secretly sent for T'oo-mih, a noble of the country, and after a

solemn conversation they pledged their mutual fidelity by drinking together. T'oo-mih was then sent forward to lead the way for the army. When within about 60 *le* of the Shen-yu's city they pitched their camp, and caught two more K'ang-keu nobles, named Keu-sih-tsze and Nan-kae-mow, of whom they made use as guides. Keu-sih-tsze was T'oo-mih's maternal uncle, and both were aggrieved by the conduct of the Shen-yu, by which means Ch'in gained an intimate knowledge of the state of Che-che's affairs. The following day the army advanced, but when within 30 *le* of the city the camp was again pitched. The Shen-yu then sent a messenger to inquire what the Chinese troops had come for; to whom the following reply was committed:—"The Shen-yu formerly addressed a letter to the throne, saying: 'Wretched and miserable as I am, it is my desire to become attached to the empire, submitting to the plans of the powerful Han, when I will go to render homage in person.' Now the Emperor, compassionating the case of your highness in having abandoned a great kingdom, and condescended to submit to the condition of K'ang-ken, has sent the military commander under the Governor General to meet your highness with your wives and children. But fearing the inhabitants might be moved with alarm, we have not ventured to approach the city." This was followed by a succession of correspondence between the parties; till at length Kan and Ch'in forwarded a message to the following effect:—"We have made a long journey for the sake of your highness; yet up to the present time you have sent no prince of distinction or grandee to meet the general, to receive the Imperial instructions, or to tender his services. Why is your highness surreptitiously concocting some great scheme of deception, while you omit the rites of hospitality? After their long and weary journey, men and animals are utterly broken down, and the store of provisions is exhausted, so that it is to be feared we shall not be able to return. We beg your highness, in concert with your high Ministers, to devise some means for our relief." On the following day they advanced towards Che-che's city on the Too-luy river. They halted at a distance of three *le*, and formed into rank. Round the city could be seen flags and streamers of every colour, and several hundred men in armour on the walls. More than a hundred cavaliers were riding about under the walls, and about the same number of foot soldiers were clustered round the gates like scales on the back of a fish. These seemed to be planning the disposal of their troops; while those on the wall were bawling out defiance to the Chinese army. A hundred or more horsemen rode towards the camp, where the troops all stood ready with their bows bent, but the horsemen drawing aside, evaded the arrows. The Chinese detached a party to attack those round the city gates, when horse and foot all sought refuge inside. Kan and Ch'in then gave orders to beat to arms through the camp, and the sound of the drums was heard at the city walls. The city was defended on all sides at the entrenchments and gates of the barricades: the shield-bearers formed the van in the attack, and these were followed by the lancers

and cross-bow men. The archers aimed at the occupants of the galleries inside the city, when the latter rushed down and took up a position outside the earthworks, and inside the double stockades. There the arrows of the besieged succeeded in killing and wounding some of the attacking party. The besiegers then collected fuel and set fire to the stockades. At night several hundred horsemen tried to make their escape, but lost their lives in the attempt. When the Shen-yu first heard that the Chinese troops had arrived, he suspected the King of K'ang-keu, irritated against him, had called in the aid of the Chinese; but learning afterwards that the troops of Woo-sun and the other kingdoms were all in arms, he found there was no asylum open to him. He therefore returned again after he had left the city, saying:—"My best plan is to hold out on the defensive. The Chinese troops having come a great distance, will be unable to sustain a lengthened siege." Putting on his armour he ascended a gallery with his consorts and ladies to the number of several tens, all armed with the bow and arrows, presenting a bold front to the besiegers. At length an arrow from below struck the Shen-yu on the nose, while the ladies were all nearly dead with exhaustion and alarm. The Shen-yu descended, mounted his horse, rode off shooting as he went, and took refuge in the ladies' apartments. After midnight an opening was effected in the stockades; when those inside crossed the earthworks, ascended the city wall and shouted. At the same time, over 10,000 K'ang-keu mounted troops, who were stationed at ten or more places all round outside the stockades, answered the shouts of those within. During the night there was much running to the camp, greatly to the detriment of the Chinese cause. By daybreak the fire was raging in all directions, and the air was rent with the joyous shouts of the victors, while the noise of the drums and cymbals shook the very earth. The K'ang-keu troops then led the Chinese in on all sides; and the shield-men got within the earthworks. More than a hundred persons, male and female, of the Shen-yu's family ran to take refuge in the inner apartments of the palace. The Chinese set fire to the building, and strove to gain admission, when the Shen-yu was speared by the troops, and the military deputy, T'oo Heun, cut off his head. In the palace were found two of the Chinese envoy's tokens of credence, and the silk presents and despatches brought by K'uh Keih and others. The captors delivered up the prisoners they had taken. The consort and heir-apparent of the Shen-yu, with distinguished princes and subordinates 1,518 persons in all, were decapitated; 145 were carried captive; and more than 1,000 submitted. These were distributed among the fifteen princes of the surrounding kingdoms, who had sent to assist in the siege. At this stage of the proceedings Kan Yen-show and Ch'in Tang prepared a statement to lay before the throne, to the following effect:—"Your servants have understood that the great theory of empire is unity. In ancient times there was the empire of Tang Yu, and now there is the formidable Han. Hoo-han-seay, the Shen-yu of the Heung-noo, has already declared himself a northern border vassal.

But Che-che Shen-yu rebelled, and would not acknowledge his crimes; while the people on the west of the Ta-hea all said that he could not be brought under vassalage to the formidable Han. Che-che's inhuman violence was being painfully felt among the people, and his great crimes cried aloud to Heaven for vengeance. Your servants, Yen-show and Tang, taking command of the voluntary forces, have carried out the retribution of Heaven. Relying on your Imperial Majesty, the spiritual intelligences and the dual powers, and looking to the celestial indications, at early dawn we assaulted the ranks of the refractory, defeated the enemy, and decapitated Che-che with his distinguished princes and subordinates. It would now be well to suspend their heads at the Barbarian Hotel in Kaou Street in the capital, in order that it may be clearly known to a distance of 10,000 *le*, that whoever contravenes the institutions of the formidable Han, however great the distance, the crime will certainly be punished." This matter was referred to the proper board for decision; when the Prime Minister K'wang Hāng, and the Grand Censor Fan Yen-show, delivered the following as their views:—"Were the heads of Che-che and his distinguished princes exhibited through the various kingdoms, the several barbarian races would all then inevitably become acquainted with the facts. According to the *Yuē-ling* section of the 'Book of Rites,' 'Spring is the time for covering up rotten bones, and burying putrid flesh.' Consequently the heads ought not to be suspended." The Carriage Cavalry General Hen Kea, and the Right General Wang Shang said:—"According to the 'Spring and Autumn Annals,' when there was a state assembly at Keā-kūh, the jester She having ridiculed the princes, he was put to death at the instigation of Confucius. Although it was then the height of summer, the head and feet of the victim were suspended at different gates. The heads ought now to be suspended for ten days, and then buried." An Imperial rescript then ordered the generals to hold a council on the subject. Now it so happened that on a previous occasion the Board Clerk Shih Hēn had wished Kan Yen-show to marry his sister; but Kan had refused. At the same time K'wang Hāng and Fan Yen-show, who were both disgusted with Ch'in Tang's haughty bearing, brought the following charges against him:—"During the siege, Ch'in had kept an eye on the treasure that was captured; and when it was brought into camp he had made an unlawful appropriation of the same. As Superintending Official and Deputy Protector he had forwarded letters along the road to cause recruits to be raised. In proof of this we may refer to his memorial, in which he says:—'Your servant, in concert with the officers and troops, has put to death Che-che Shen-yu. He has happily succeeded in taking captives and crushing the spirit of insubordination, thus restoring order among the people to a distance of 10,000 *le*. It would be well to send an envoy to meet and congratulate the victors on the road.' Now it is plain that the superintending official has rebelled, and taken the recruits with him. As proof of this we may refer to what he says of having taken vengeance on

the Shen-yu. Should the Emperor send troops with orders to suspend the heads and prepare entertainments along the road, it will be in excess of military custom." When they came to discuss the question of merit. Shih Hëen and K'wang Hāng thus expressed their views :—" Kan Yen-show and Ch'in Tang have raised an army on their own responsibility, and by their overbearing conduct have fortunately been successful in escaping chastisement. If further rank and land be conferred on them, then future envoys, striving to obtain a marquisate, will succeed in raising troubles among the barbarians, and thus involve the empire in difficulties, which will gradually become inextricable." The Emperor, however, looked with favour upon the merit of Kan and Ch'in, and took exception to the counsel of K'wang Hāng and Shih Hëen. The consultation having lasted for a long time without arriving at any decision, the Clan Rector Lew Heang laid the following memorial before the throne :—" Che-che Shen-yu imprisoned and put to death our envoys and their followers, and his innumerable barbarities had become notorious, so that our prestige in foreign countries was being injured, and our influence destroyed; being a source of grief to all the Ministers of your Imperial Majesty. In considering the question of chastisement, your Majesty in your luminous penetration has not forgotten that Kan Yen-show, the Governor General of the Western regions, and Ch'in Tang, the Assistant Deputy Protector, rested on the indication of your Sacred will, trusting to the spiritual intelligences. While ruling the princes of all the barbarian races, and holding the control of the troops of the various cities, they yet advanced in person to the most distant regions, passing through a hundred unheard-of dangers. Then making an incursion on K'ang-keu, they destroyed the five-fold defended city, pulling down the satrap's flag. They beheaded Che-che, and suspended the Imperial banner at a distance of more than 10,000 *le*. They exalted the prestige of the empire to the west of the Kwān-lun Mountains; they swept away the disgrace of Kūh Keih's affair, and established the most resplendent merit. Now the barbarians will tremblingly submit, being all filled with trepidation. Hoo-han-seay, seeing that Che-che is punished, will be moved with joy, and also with fear; and when the rumours reach him, he will hasten to show his allegiance by prostrating himself before the throne. Wishing to preserve the northern border territory, the Shen-yus through all ages will acknowledge themselves vassals. Thus merit of a thousand years' standing has been achieved, and peace has been secured for 10,000 generations. There is no higher instance of patriotism among the Ministers than this. In former times, when Fang Shuh and Keih-foo, Great Statesmen of the Chow dynasty, chastised the Heen-yun for King Seuen, the barbarians all submitted, as commemorated in the "Book of Odes" (Part II. Book iii. Ode 4, ver. 4) :—

" Numerous were his war chariots,
 Numerous and in grand array,
 Like the clap or the roll of thunder their onset.

Intelligent, and true is Fang Shuh.
 He had gone and smitten the Heen-yun,
 And the tribes of King came, awed by his majesty."

We read in the "Book of Changes":—"It is a good thing to behead the chief offender, to obtain the submission of the rebellious class." This commends the slaughter of the head criminal, since it causes all the refractory to return to their allegiance. Now the capital punishment inflicted and the trepidation, created by Kan Yen-show and Ch'in Tang is a feat not equalled even by the beheading of the chief offender of the "Book of Changes," or the thunder-clap or roll of the "Book of Odes." In speaking of great merit, little faults are not noticed. In selecting an object of exquisite beauty, petty blemishes are tolerated. Sze-ma Fā says:—"In rewarding military merit, a month should not be allowed to elapse; for the people should quickly appreciate the benefits of well-doing."

By the rapid attainment of military merit, the service of the men is enhanced. When Keih-foo returned to Chow, he received liberal gifts; as it is said in the "Book of Odes" (Part II. Book iii, Ode 3, ver. 6):—

"Keih-foo feasts and is glad;
 Great happiness is his.
 In returning from Haou,
 Distant and long had been our march."

At 1,000 *le* they considered Haou to be very distant; how much more extreme the exertion when 10,000 *le* off! As Kan Yen-show and Ch'in Tang have not received this great happiness for their reward, while on the other hand they have risked their lives, and long humbled themselves before the ranks, they have not been treated in a way likely to encourage meritorious soldiers who are expert with their lances. Formerly, when Hwan the Duke of Tse had the merit of doing honour to the Chow before him, and the guilt of exterminating Heang behind, superior men considered his merit had made amends for his delinquency, and were silent regarding his conduct in the past. Again, Le Kwang-le, the Urh-sze General, sacrificed an army of fifty thousand, and spent an untold amount of silver in a laborious service of four years, and merely obtained thirty swift horses for his trouble; and although he secured the decapitation of Wuh-kwa, the King of Ta-wan, this was a very inadequate return for the expense. His own sins were very many; yet in consideration of his military achievements for a distance of 10,000 *le*, the Emperor Woo-te overlooked his faults. He was then promoted Marquis of Pae-leang, with three high Ministers, an emolument of 2,000 piculs of rice, and a retinue of over a hundred persons. Now K'ang-keu was stronger than Ta-wan, the renown of Che-che was greater than that of the king of Ta-wan, and the crime of killing an envoy is much heavier than that of retaining horses. But Kan Yen-show and Ch'in Tang have not troubled the empire for troops, nor have they used a bushel of the

empire's rice; so that in this respect their merit is a hundred times greater than that of the Urh-sze general. Further, when Chang Hwuy was about to attack Woo-sun, and when Ching Keih went to meet the Jih-ch'uh prince coming in person, the earth was rent with acclamation, and they received rank; hence it was said that their martial dignity and laborious service were greater than those of Fang Shuh and Keih-foo; and their manifest merits compensating their faults, were even more abundant than those of Duke Hwan of Tse and the Urh-sze general. Now the merit of the recent events is higher than those of Ching Keih, Marquis of Gan-yuen, and Chang Hwuy, Marquis of Chang-lo. But the great merit of Kan and Ch'in has not been proclaimed, while their petty faults have been overstated. Your servant is oppressed with the opinion that the heads of the malefactors ought to be exposed to view for the proper period, and duly inserted in the records. Absolve the victors for past faults, and honour and prefer them by rank and position as an encouragement to the meritorious." Consequent on this, the Emperor issued the following rescript:—"Che-che Shen-yu of the Heung-noo, in contravention of established rites, detained and put to death China's envoy and suite, rendering himself exceedingly obnoxious to the principles of justice. How can I forget this? Consequent on this, much ineffectual travelling took place, but there was no invasion of the offender's territory. The army was harassed by painful expeditions, wearying the troops till they were well-nigh exhausted; so that we were obliged to endure the wrong in secret, without giving utterance to our feelings. Now Kan Yen-show and Ch'in Tang, watching their opportunity, took advantage of the time to secure the aid of the various kingdoms; and raising an army on their own responsibility, peremptorily invaded the domain of the delinquent. Relying on the spiritual intelligences of heaven, earth, and the ancestral temple, they took vengeance on Che-che Shen-yu, decapitating him, together with his consort, his nobles, distinguished princes and subordinates, to the number of a thousand in all. Although in this matter they have overstepped the rules of propriety and transgressed the law, yet they have not troubled the empire for a single man's service, nor have they spent a *tael* from the Imperial treasury; but supplied themselves with provisions from the enemy's stores, for the use of the army. They have thus established their merit at a distance of more than 10,000 *le*. All the barbarians are moved with awe by their prestige, and their renown has spread to the remotest seas. They have rendered a service to the empire in improving the character of the troops; and those who settle down on the borders may now rest in peace. Still they have rendered themselves amenable to the punishment of death or exile, and their crimes have been under consideration by the authorities. But I, feeling great compassion for them, hereby grant a free pardon to Kan Yen-show and Ch'in Tang." The Emperor then ordered the dukes and high ministers to consult together as to their promotion. The assembled deliberators decided that the rule prescribed by military

law, regarding the capture and decapitation of a Shen-yu, ought to be complied with. K'wang Hāng and Shih Hēēn, however, said that Che-che having fled into exile, had lost his kingdom; and clandestinely exalting his pretensions, he was not really a Shen-yu. The Emperor quoted the precedent in the case of Ching Kēih, the Marquis of Gan-yuen, who was promoted to the benefice of a thousand families. After hearing some further objections from K'wang Hāng and Shih Hēēn, Kan Yen-show was gazetted as Marquis of E-ching, while Ch'in received rank as Marquis of Kwan-nuy. Each was endowed with a benefice of 300 families, and had a bonus of a hundred pounds weight of gold. The event was declared before God and in the ancestral temple, while a general amnesty was proclaimed throughout the empire. Kan Yen-show was inducted as Deputy Protector of Chang-shwuy, and Ch'in Tang was made Deputy Protector of Seay-shing. Kan Yen-show was successively removed to the offices of Deputy Protector of the City Gates and Army-defending Protector General, and died during his incumbency.

Soon after the accession of Ching-te (B.C. 32), Ch'in's old opponent, K'wang Hāng, again memorialized, saying:—"While under Imperial commission, with an emolument of 2,000 piculs, Ch'in Tang issued his own commands among the barbarian nations. He was himself the first unjustly to appropriate the booty taken in K'ang-keu, and warned his subordinate officers that in such an extremely distant region matters would never be inquired into. Although this took place anterior to his pardon, still it is not right that he should be in a position of trust." Ch'in stood exculpated from these charges, however. After this he laid a statement before the throne to the effect that the hostage prince of K'ang-keu was not really the king's son. Upon investigation it was found that he was truly the king's son, and Ch'in was thrown into prison on a capital charge. While still in durance, the Grand Middle Great Statesman, Kuh Yung, laid the following apology for Ch'in before the throne:—"Your servant has heard that Duke Wān of Tsin caused Tsze-yuh Tih-shin, an officer of Tsou, to sit at a side mat. When Ma-fuh, the Seaou General, was overbearing in his conduct to Ts'in, Leen Po of Seaou could not bear to observe troops in the Well defile. More recently, during the Han, when Che-che had his capital at Wei, although a Heung-noo, he did not dare to go south to the Sha-mo desert. From such instances as these we may see that the general who is victorious in battle is as claws and teeth to the empire, and may not be treated slightly. When the superior man hears the sound of the drums, his thoughts naturally revert to his servant in command of the troops. It appears to me that Ch'in Tang, the Marquis of Kwan-nuy, having formerly been appointed Assistant to the Governor General of the Western regions was enraged at Che-che's unprincipled conduct; and pitying the king's inability to chastise him, he excogitated a plan of action, impetuously called out an army of patriotic braves, and hastily got them in train. When the troops were set in

motion they made a rapid march across Woo-sun, and assembled at a distant point on the Too-luy river. Destroying the triply-fortified city, he decapitated Che-che, and reported the punishment of the ten years' refugee, thus wiping off the disgrace of the border official stations. His prestige has overawed all the barbarians, and the fame of his military prowess has extended to the Western sea. From the commencement of the Han dynasty, no general had been found competent to invade the outside regions. Now Ch'in Tang stands charged with perjury, and having been cast into prison, has been long in bonds; and although much time has elapsed, his case is not yet decided. The officials at whose instigation he is confined wish him to be submitted to capital punishment. In former times, when Pih K'e, the Ts'in General, had captured Ying-too in the south, and outwitted Seaou-kwa in the north, he was afterwards put to death at T'oo-yew for some trifling fault; and the people of Ts'in all shed tears of compassion for his fate. Now should Ch'in Tang be submitted to the executioner's knife, there will be an instantaneous outburst of tears of blood for a distance of more than 10,000 *le*. His meritorious deeds have been presented in the ancestral temple, and declared before God at the annual sacrifice. The armour-clad warriors, who invariably look for justice, will deem this a crime, and an inglorious enormity. 'The Book of Chow' says:—'The proper attitude for a prince is to remember men's merits and forget their faults.' When dogs and horses exert themselves for their masters, their service is rewarded by cloths and coverings. How much more should the meritorious service of a Minister of the empire be acknowledged! I fear your Imperial Majesty has disregarded the sound of the drum; and not having examined the meaning of the 'Book of Chow,' has forgotten to give the cloth or the covering to a useful servant. Should Ch'in Tang die, his retainers will consult together, and there will be disquietude among the people, like the indignation of the people of Ts'in. That is not the way to encourage Ministers to brave difficulties to the death for their country." When this memorial reached the Emperor he set Ch'in at liberty, but deprived him of his titles and reduced him to the ranks.

Several years after this, Twan Hwuy-tsung, the Governor General of the Western regions, being surrounded by Woo-sun troops, despatched a horse express to Court with a letter, signifying his desire to raise troops from the various Western kingdoms and from Tun-hwang for self-protection. The Prime Minister Wang Shang, the Generalissimo Wang Fung, and all the high officials, deliberated together for several days without coming to any decision; when Wang Fung suggested:—"Ch'in Tang is fertile in devices, and practised in the ways of foreigners. His opinion might be asked." An Imperial rescript then summoned Ch'in to the palace. It happened that his arms were paralysed from the effects of the cold and sickness brought on at the time he attacked Che-che. When he entered the palace the Emperor consequently dispensed with the customary prostrations in his case; and Twan Hwuy-

tsung's memorial was shown to him. Ch'in excused himself, remarking :—"The high civil and military magnates are all men of wisdom and ability, intelligent and prudent; but your humble servant has been cast aside as infirm and useless, and is now incapable of planning any great undertaking." The Emperor said :—"There are superior men for State emergencies. Do not withhold your counsel." Ch'in replied :—"Your servant is of opinion that there is no great cause for anxiety." "How so?" said the monarch. Ch'in continued :—"Five foreign soldiers are equal to one Chinese. How is this? The swords they use are rough and blunt; and their bows are of the clumsiest description. Now I hear they have acquired something of Chinese ingenuity in the manufacture; still they are but as three equal to one of ours. Again, according to the military canons, when the guest is double and the host only half, then war ensues. But the multitude encircling Twan Hwuy-tsung are insufficient to conquer him. Let not your Imperial Majesty be disquieted. Light troops travel at the rate of 50 *le*, while heavy troops make only 30 *le*. Now Twan Hwuy-tsung wishes to raise troops from the various kingdoms, and from Tun-hwang. In course of time they would arrive, and might serve for retaliation, but they would be of no use to deliver in a case of emergency." The Emperor said :—"How is the siege to be raised? In what time will it certainly be raised?" Ch'in, knowing that the Woo-sun force was like a heap of tiles without any bond of union, and would be unable to maintain the siege for long, judging by former events not more than a few days, answered :—"The siege is already raised." Then doubling up his fingers to number the days, he said :—"Within five days you ought to have good news." In four days a military despatch arrived, with the news that the siege was raised. The Generalissimo Wang Fung remarked in a memorial, that—"Among the inner councillors on State business, none is better able to arrive at a correct conclusion than Ch'in Tang. He is clear as to the laws, he judiciously discriminates according to the position of affairs, and in tendering his views he pays great attention to the practical. When he receives money from others, he embodies his financial report in a memorial; and this has eventually brought him to ruin."

Ch'in was originally on good terms with Keae Wan-nëen, the Superintendent of Public Works. Since the time of the construction of the Wei tombs during the reign of Yuen-te, the people had not been removed to any new city. Several years after Ching-te had erected the Ts'oo tombs, the work was again carried on south of the pavilion devoted to the music of the Pa tombs. Keae Wan-nëen taking counsel with Ch'in, the latter said :—"The work executed by the architect Yang Kwang-e in the time of Woo-te, was submitted to the Emperor for approbation. Having myself induced the Superintendent of Public Works, with the Superintendent of Agriculture and Inner Deputy Käng Show-chang, to build the T'oo tombs, the rank of Marquis of Kwan-nuy was conferred on me; and the Superintendent of Public Works, Ching-ma

Yen-nëen, was placed on the civil list at 2,000 piculs of rice. Now the great merit of repairing the Ts'oo tombs and building the city having been completed, Keae Wan-nëen ought to receive a handsome reward. My wife and family are in Chang-gan; my children were brought up in Chang-gan, and do not like the east country. I may ask to be removed, and might receive the gift of a house and land all complete." The thought commended itself to Ch'in, who laid the matter of promotion before the throne, saying:—"The land of the Ts'oo tombs, which belongs to the capital, is very rich, and might be erected into a district. For more than thirty years past the people of the empire have not been removed. Wealthy men on the east of the barrier are becoming very numerous; they are marking out the good land for themselves, and are availing themselves of the services of the poor people. These latter might be removed to the Ts'oo tombs, in order to strengthen the capital, and weaken the feudal princes, which would tend to equalise the wealth of the middle and lower classes. Tang wishes to be the first to move to the Ts'oo tombs with his family and dependants." The Emperor fell in with this scheme, and began the erection of the city of the Chang tombs, intending afterwards to populate it with people from various regions. Keae Wan-nëen imposed on himself the task of finishing the city wall in three years, but died before it was completed. The Ministers then strongly represented the unsuitability of the site. The question was referred to the authorities in charge for deliberation. The latter all said:—"The site of the Chang tombs being low, in order to raise it to the proper height the earth has to be heaped up like a mountain, while it is proposed to place the adjoining buildings on the level ground. The alien earth will not be protected by the invisible intelligences; nor can the low outer portion be defended by troops. The expense of the work will amount to millions, and will have to be carried on at night by candle-light. The expense of bringing earth from the eastern hills will make it as costly as grain. When the work is carried on for several years, distress from fatigue will be felt throughout the empire; the Imperial house will be wearied out, and the resources of the treasury will be exhausted; while the masses of the people will bitterly bewail their fate. The ancient tombs were raised with the natural earth of the locality, according to celestial principles, the height being regulated by those of the ancestors adjoining. Ten years of meritorious service has already been expended on them. It would be well to return again to the ancient tombs, and not remove the people." The Emperor then issued a rescript, ordering a cessation of the works at the Chang tombs, the words of which are found in the "Record of the Reign of Ching-te." The Prime Ministers and censors requested that the houses in the city of the Chang tombs might be abandoned. Before their memorial was handed over to the proper board, Ch'in was asked why his official residence was not transferred, so that he had no occasion again to remove? To this he replied:—"As district officer, I am obedient to the wish of the Ministers; still

there will be another removal." At that time, Shang, the Marquis of Ching-too, who was newly-appointed Cavalry Superintendent, General of the Guard and Assistant Administrator, who had been on bad terms with Ch'in, hearing these words, said :—"Ch'in has been exciting the multitude," and he was thrown into prison. It appeared on investigating his crimes that formerly when Ch'in was Cavalry Protector General, Wang Mang laid a letter before the throne, saying :—"My father dying early in life, I his only son was not promoted; my mother, Ming-keun, applying herself with still more unwearied assiduity in the service of the empress-dowager." Being entitled to promotion he was eventually made Marquis of Sin-too. After this, Kow Tsan, the Protector General of Shwuy-hāng, who was uterine brother of the empress-dowager, died; and his son K'ieh was among the Imperial attendants. The widow of Kow Tsan wishing to obtain promotion for K'ieh, Ch'in Tang received fifty pounds weight of gold from her, with the promise that he would forward a memorial for her according to her desire. Now it happened that Chang Kwang, the Governor of Hung-nung, stood charged with having received a million cash, for forwarding a fraudulent and unprincipled petition to the throne. The Emperor ordered an investigation; and fearing he should be cast into prison, he sent a messenger to inform Ch'in. The two million cash for which Ch'in had given his promise belonged to the same class of offence for which the other had been impeached. This took place before he received his free pardon. Afterwards, Hih Lung, the Governor of the region of Tung-lae, sent a person to make inquiry of Ch'in regarding the matter. Ch'in said this was for the payment of petty transactions connected with what is called the Black-gate, of which the disbursements and receipts are at no stated times. Hence Hih Lung said it was not a periodical payment. Again, as to his remark that "there will be another removal," the words had been passed from mouth to mouth by ten or more persons; and the Prime Ministers and censors memorialised to the effect that :—"Ch'in had excited the multitude to evil; and had unjustly attempted to impose perverse views on the sovereign; his words being highly improper, and greatly wanting in reverence. T'ing Hwuy and Seaou Tsāng-show in consultation have considered that if this iniquity is not a capital crime, it is difficult to know how to class the offence. Your servants in employing subordinates have erred in judgment; and have therefore brought this case before T'ing Hwuy for decision. Let unparalleled cases be first heard, that the punishments may be rectified, and human life respected. The intelligent sovereign, compassionating the people, has issued an order, which has already been published, to put a stop to operations at the Chang tombs, that the officials and people may not be removed. But Ch'in having falsified the Imperial intention, saying, 'There will be another removal,' although the words are calculated to stir up a movement; yet as they have not been widely circulated, there has been no rising among the people, and it can scarcely be said that he has excited the multitude. Ch'in

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having fraudulently fabricated a statement, however, for which there was no foundation, his words are highly improper, and greatly wanting in reverence." An Imperial order was then issued, which said:—"Yen Hwuy and Seaou Tsang-show have judged rightly. Ch'in has the merit of having formerly reduced Che-che Shen-yu. Let him be reduced to the level of the common people, and removed to the border." The order said also:—"Formerly Keae Wan-nēn, the Superintendent of Public Works, fraudulently and disloyally concocted false statements, and made oppressive exactions: vexing the people with troubles, and making use of their services in violent and oppressive labours. Numbers of troops who had incurred the death penalty were seen in bands. Bitterness spread through the masses, and from sea to sea their hopes were tempered with complaint. Although he has received a free pardon, he must not reside in the capital." Ch'in Tang and Keae Wan-nēn were consequently removed to Tun-hwang. After a time, the Governor of Tun-hwang memorialised thus:—"Formerly Ch'in Tang personally chastised Che-che Shen-yu, and his prestige having spread through the foreign kingdoms, it is not suitable for him to be near the border strongholds." By Imperial order he was then removed to Gan-ting (now the district of Lung-tih in the prefecture of Ping-leang, in Kansuh province). While there, the Counsellor Kāng Yuh presented a letter to the throne, pleading Ch'in's cause, against the injustice to which he had been submitted, saying:—"Kan Yen-show and Ch'in Tang have expanded the sacred influence of the Han, and made known its prestige in remotely distant parts. They wiped out the shame for many years' standing of the Imperial family: reduced the intractable princes of the remotest regions; and attached the most ungovernable captives at a distance of 10,000 *le*. How was this? The former Emperor treated them kindly, and issued an illustrious rescript proclaiming their merits. He also changed the style of the years (B.C. 33), that the memory of their actions might be everlastingly handed down through changing generations. Corresponding with this, a white tiger was presented from the southern regions; and there was no alarm or precautions taken at the border. When the sovereign was laid on a sick bed, the same idea was still carried out, nor were the meritorious forgot. The president of a supreme board was on several occasions sent to institute inquiries, and the Prime Ministers were constrained to acknowledge their merits. Only the Prime Minister K'wang Hāng made objections, and refused to accede. Kan Yen-show and Ch'in Tang were promoted to benefices of several hundred families, and now we see how such meritorious Ministers and distinguished warriors lose hope. When the Emperor Ching-te came to the throne, he obtained the prestige of successful invasion; the troops were at rest; the Imperial family was undisturbed; and the depraved and slanderous insinuations of great Ministers had little weight at Court. Difficulties from first to last have arisen from a desire to guard against imaginary contingencies. Some wishing to have undivided control of the prestige, merit had

to give way to envy, and Ch'in was treated as a blockhead. Being unjustly held a prisoner, he was unable to exculpate himself. Eventually, for no crime committed, he was exiled to Tun-hwang in his old age; which being directly on the high-road to the Western regions, caused officers and subjects of irreproachable name to turn on their heels, while Ch'in himself became the laughing-stock of the remaining captives who had been in the service of Che-che. Truly it is mournful. Hitherto those who have received a commission to the outer barbarians have lost no opportunity of adducing the chastisement of Che-che, in order to exalt the resources of the Chinese empire. Now to put forward the merits of men in order to frighten the enemy, while the persons of the same are sacrificed to please insinuating flatterers, how truly painful! In the time of peace we should not forget danger; in the season of prosperity we ought not to ignore the possibility of decay. Now the Imperial house does not possess the well-filled treasury, resulting from the many years of economical government of Wān-te; nor has it the subjects courageous and distinguished for taking the enemy that were presented and received at the Court of Woo-te. Ch'in Tang is the only one that can claim that honour. If past ages should not have attained to the glory of your Imperial Majesty, it is to be hoped your Imperial house will look back and record the meritorious, and put the seal of promotion on his tomb, in order to encourage the emulation of posterity. Ch'in Tang happily succeeded in obtaining merit during the sacred years of your reign; but ere long, depraved Ministers gaining the ascendancy, he was scourged away to a distant abode. Should he flee into exile, skulking in obscurity, and die in a homeless land, good men looking at his case from a distance will reckon thus: Ch'in's merit is unattainable for ages, and his faults are such as are common to human nature. Such is Ch'in, and although his bones and sinews are rent asunder, and his bare body exposed to the heat and cold, yet still he is under the control of mere talkers, and is held captive by jealous Ministers. On this account your servant is still more distressed for the Imperial house." On the presentation of this memorial the Emperor recalled Ch'in, and he ended his days in Chang-gan. Some years after his death, when Wang Mang the Duke of Ganhān, held the reins of government, calling to mind the former favours of Ch'in Tang, and desiring to flatter the empress-dowager, he reported the merit of chastising Che-che, in the temple of Yuen-te, whom he honoured by designating Kaou-tsung. In remembrance of the former merits of Ch'in Tang and Kan Yen-show, he bestowed large gifts on Po and How-ching, but made no gift to T'oo Heun. He then further promoted Ts'een, the grandson of Kan Yen-show, to a benefice of 1,600 families. Ch'in Tang was canonized as Robust Marquis of Po-hoo; and his son Fung was made Marquis of Po-hoo. T'oo Heun was made Marquis of Taou-teih.

- B. The following is the Memoir of Chang Këen, as given in the "Tsëen Han Shoo," Book lxi, fol. 1-6.

CHANG KËEN was a native of Han-chung. In the *keen-yuen* period (B.C. 140-135), when he held a subordinate office in the Council, some of the subjects of Heung-noo reported that the Yuë-she had been defeated by their countrymen, who had converted the king's skull into a drinking bowl. The Yuë-she had decamped under a strong feeling of irritation against the Heung-noo; but standing alone, it was hopeless to attempt retaliation. On hearing this, the Chinese—who were looking for some occasion to extinguish the power of the Heung-noo—wished to open up communication with their old neighbours the Yuë-she, but unfortunately the way to their new settlement lay through the Heung-noo country. When it became a question who should undertake the commission, Chang Këen requested the appointment, and was accredited to the Yuë-she, to be accompanied by Kan-foo, a slave of the T'ang-yih family. They left the country by Lung-se, and attempted the passage through the Heung-noo; but were stopped by the latter, and taken before the Shen-yu. The chieftain thus addressed them when he had ascertained their object:—"The Yuë-she dwell to the north of my territory. How can the Chinese think of holding communication with them? Should I wish to send an envoy to the Yuë, would China suffer it?" Chang Këen was accordingly detained, and forced to live among them for more than ten years, during which time he married a native of the tribe, and begat children. Still he was ever careful of his token of credence, which he never lost; and being located in the western part of the Heung-noo country, he contrived eventually to make his escape, along with his followers, and took the road towards the Yuë-she. After a rapid journey westward for several tens of days, he reached Ta-wan. The king of that country, who had heard of the superabundant wealth of China, had wished to open up intercourse with the empire; but had hitherto been unable to do so. On seeing Chang Këen he was delighted, and inquired the object of his journey. The envoy replied:—"I am sent by China on a mission to the Yuë-she, but have been detained on the way by the Heung-noo. Now I have escaped, and wish your Majesty to send guides to escort me on the way. Having reached my destination, and returned to China, the Emperor will send presents of untold value to your Majesty." These words satisfied the King, who sent guides and interpreters to conduct the party to K'ang-keu. The K'ang-keu, in their turn, forwarded them to the Ta Yuë-she. When the King was killed by the Heung-noo, his widow was raised to the supreme power, and having reduced the Ta-hea they ruled over them. The country they now inhabited was rich and fertile; brigandage was rare, and the people were peaceful and happy. Considering the distance they were from China, they would not entertain the envoy's overtures, and had not the slightest intention of taking vengeance on the

Heung-noo. Chang K'een then went to the Ta-hea; but to the end he could get no satisfactory hold on the Yuē-she; and after a stay of more than a year, he returned. Following the Southern mountains, he tried to make his way through the country of the Keang, but was again taken by the Heung-noo. There he was detained more than a year, till the Shen-yu died, when the nation falling into a state of anarchy, he was able to make his escape with his foreign wife, and Kan-foo of T'ang-yih, who all fled to China. Chang K'een was then made Grand Middle Great Statesman, and Kan-foo of T'ang-yih was made Prince of Commission. Chang K'een was robust and impetuous, generous and confiding, and had gained the affections of the barbarians. Kan-foo of T'ang-yih was a Heung-noo by nation, and excelled in archery. In times of emergency he was able to supply the party with food, by the game that fell under his arrows. When they commenced their journey the party consisted of more than a hundred men; they were absent 13 years, and only two of the original company returned. The envoy personally visited Ta-wan, the Ta Yuē-she, the Ta-hea and K'ang-keu. Besides these, he collected accounts of five or six of the neighbouring great kingdoms, and gave to the Emperor a description of their outlines and productions; the details regarding which are all given in the "Notes on the Western Regions." Chang K'een is reported to have addressed the monarch in such terms as the following:—"When your servant was among the Ta-hea he observed they had Keang bamboo staves, and Shuh cloth. On inquiring where they procured these things, the Ta-hea people replied: 'Our merchants go to Shin-tūh to buy them. Shin-tūh is south-east from the Ta-hea, several thousand *le*. The inhabitants are accustomed to live in permanent settlements, the same as the Ta-hea. The country is low, damp, and hot; and the people go to war on elephants. The boundaries of the kingdom extend to the great ocean.' According to my estimate, the Ta-hea are situated south-west from China, at a distance of 12,000 *le*; and as Shin-tūh, where the Shuh productions are found, is several thousand *le* to the south-east of the Ta-hea, it seems that place cannot be far distant from Shuh. Now it is dangerous to pass through the Keang, in order to reach the Ta-hea; for the Keang are inimical. A little farther to the north we get taken by the Heung-noo. We ought to go straight through from Shuh, and then we should escape the brigands. Your Imperial Majesty has heard of Ta-wan, the Ta-hea, and Gan-seih, which are all great kingdoms, having many things that are strange, and natural productions special to each. Their customs resemble those of China in some respects; their military are feeble; and they have a high appreciation of Chinese treasures. To the north are the Ta Yuē-she and K'ang-keu, who have formidable armies. By dint of presents they might, with the prospect of gain, be induced to render homage to China, and thus verily by diplomacy we might succeed in securing their attachment. Our territory would thus be expanded 10,000 *le*, embracing people of every custom, and requiring a ninefold staff of interpreters; while the prestige of

the empire would be all-pervading from sea to sea." The Emperor was transported with delight, and fell in heartily with Chang K'een's suggestions. He then gave orders that exploring parties should be sent out from Shuh and Keen-wei, in four different directions. One party went by Mang; one by Tsö; one by Se and K'ung; and one by Pö; each party reaching a distance of between 1,000 and 2,000 *le*. Those who went north were stopped by the Te and Tsö tribes; and those who went southward were stopped by the Suy and Kwän-ming. The Kwän-ming tribes have no chiefs, and are much given to brigandage; and so the Chinese envoys suddenly met their death at the hands of these marauders. To the end a passage could not be opened in that direction; but they heard of some countries about 1,000 *le* to the west, named Teen and Yuč, where the inhabitants rode on elephants, and the Shuh traders, who carried on a clandestine commerce with them, occasionally went there. Consequent on this, the Chinese first penetrated as far as the kingdom of Teen, in trying to find a road to the Ta-hea. When the Chinese first tried to open a communication through the south-western barbarians, after incurring a heavy expense, the enterprise had to be abandoned. When Chang K'een, however, spoke of the possibility of a communication with the Ta-hea, they were again brought into contact with the south-western tribes. When Chang K'een, as Deputy Protector, followed the Generalissimo in an attack on the Heung-noo, by his knowledge of the places where water and pasture were to be found, he was the means of saving the army from much suffering, and was in consequence created Marquis of Po-wang. This took place in the year B.C. 123.

Two years later, Chang K'een, as Guard Protector, left Yew-pih-ping with Le Kwang, for an attack on the Heung-noo. The latter surrounded General Le, who lost the greater part of his army on the occasion. Chang K'een, who had failed to bring up his contingent at the appointed time, had rendered himself amenable to decapitation; but the Emperor was pleased to pardon him, reducing him to the status of the common people. This same year the Light-horse General defeated the Heung-noo, and killed some tens of thousands on the western border, advancing as far as the Ke-leen Mountains. In autumn, the Prince of Kwan-ya brought his numerous followers, and tendered his allegiance to China; and the territories of Kin-ching, Ho-se, Se-ping, and Nan-shan, and as far as the Salt Marsh, the country was clear of Heung-noo. At that time the Heung-noo were rarely seen at Court.

Two years after this the Chinese attacked the retreating Shen-yu on the north of the desert. The Emperor several times asked Chang K'een regarding the Ta-hea tribes, when Chang, although he had been degraded from the nobility, thus addressed the sovereign:—"When your servant was residing among the Heung-noo he heard that the King of Woo-sun was styled Kwän-mo. Originally the Kwän-mo's father, Nan-tow-mo, and the Ta Yuē-she, both had small kingdoms between Ke-leen and Tun-hwang. The Ta Yuē-she attacked and killed Nan-tow-mo, and seized his land; when his

people fled to the Heung-noo. His son, the Kwān-mo, being newly born, his guardian, the Poo-tsew Heih-how, fled with the infant in his charge, and deposited him among the grass. Going to seek nourishment for his charge, on his return he found the child being suckled by a wolf; while a bird with some flesh in its beak alighted by his side. Looking on these as tokens of the child's supernatural character, he then took him to the Heung-noo, where the Shen-yu conceived a liking for him, and brought him up. On reaching manhood, the former subjects of his father were placed under his command; and on several occasions he distinguished himself by military successes. About that time, the Yuē-she, who had been defeated by the Heung-noo, attacked the King of the Sae on the west; and the latter taking flight to a great distance southward, his territory was occupied by the Yuē-she. The Kwān-mo, who now felt himself strong, requested permission from the Shen-yu to avenge his father's wrongs; moved westward, attacked and defeated the Ta Yuē-she, who fled still farther to the west, and settled in the country of the Ta-hea. The Kwān-mo took the mass of the people under his control, and remained in the country, where he gradually raised a powerful army. On the death of the Shen-yu, he refused any longer to render homage to the Heung-noo. The latter sent an army to attack him, but the expedition returned without success. The belief in his supernatural character was thereby strengthened, and the Heung-noo were careful to keep him at a distance. Now the Shen-yu having been recently coerced by China, and the original country of the Kwān-mo being empty, while the barbarian races retain a lingering affection toward their fatherland, and at the same time covet the treasures of China, truly this is the time to send rich presents to Woo-sun, and invite them eastward to occupy their old country. Let the Emperor send his daughter in marriage, and cement a fraternal alliance with the Kwān-mo. He will then listen to the Emperor's instructions, and thus the right arm of the Heung-noo will be broken. Woo-sun being thus attached, the Ta-hea tribes on the west may all be induced to submit themselves as vassals." The Emperor approved of these suggestions; and Chang Kēen was made Secretary and General, with the command of 300 men, with two horses to each man, and over 10,000 oxen and sheep; with supplies of gold and presents of silk to the value of several tens of millions of cash. Many of his followers held tokens as assistant envoys, who might be sent on commission to neighbouring kingdoms along the road. When Chang Kēen arrived at Woo-sun he delivered the Imperial edict, but he could not bring the matter to any satisfactory conclusion. The details regarding this are to be found in the "Notes on the Western Regions." Chang Kēen then despatched the assistant envoys to Ta-wan, K'ang-keu, the Yuē-she, and the Ta-hea; while Woo-sun sent interpreters and guides with them. Woo-sun also sent a mission of several tens of persons to escort Chang Kēen back, with some tens of horses as a peace-offering to the Emperor. The envoy had orders to avail himself of the occasion to observe the state of

China, and then became aware of its magnitude. Chang Këen, on his return, was made Traveller-in-chief, and in little more than a year he died.

Above a year later, the envoys who had been sent to communicate with the Ta-hea tribes, nearly all returned, bringing some of the natives of these countries with them. The intercourse of China with the countries in the north-west commenced from this time, so that Chang Këen has the merit of having opened up the road. Succeeding envoys who were despatched to those parts all spoke of the Marquis of Po-wang as their passport to the favour of foreign kingdoms, and foreign nations gave credence to them on this account. After this, Woo-sun eventually contracted a matrimonial alliance with China. At first the Emperor issued a divination document, saying:—"Supernatural horses ought to come from the north-west. When we received the Woo-sun horses, these being an excellent breed, were called Celestial horses; but on receiving the Ta-wan blood-perspiring horses, the name of the Woo-sun horses was changed to Remote Western horses, and the Fergana horses were called Celestial horses." China then began to build the great wall from Ling-keu westward, and the region of Tseu-tseuen was first established, to promote intercourse with the north-western kingdoms. Envoys were consequently again sent to Gan-seih, Yen-ts'ae, Le-keen, Teau-che, and Shin-tüh; and the Emperor conceived a partiality for the Ta-wan horses. Missions followed each other in quick succession; the larger numbering several hundred persons, and the smaller a hundred or more; and the gifts they bore were for the greater part the same as in the time of the Marquis of Po-wang. Afterwards when the custom became less of a novelty, the number of followers was gradually reduced. The greatest number of missions sent by China in one year was over ten, and the smallest number five or six. From distant countries, return missions were sent every eight or nine years, and from the nearer every few years. About this time, Yuë having been exterminated by China, the south-western barbarians, who were reached by way of Shuh, all became alarmed, and requested to have Imperial officers set over them. The regions of Tsang-ko, Yuë-suy, Yih-chow, Tsin-le, and Wän-shan were then appointed, as the commencement of a conterminous chain, intended to extend onward to the Ta-hea. More than ten missions were then sent in a year from these first regions, but they were all again stopped by the Kwän-ming, who killed the envoys and seized their presents. On this provocation, China sent troops to attack Kwän-ming, when they decapitated several tens of thousands of the tribe. After this envoys were again sent, but to the end they never succeeded in opening up a passage. The details of these events are found in the "History of the South-Western Barbarians." When Chang Këen first opened up the road to foreign kingdoms, the officials were rewarded with honours and nobility, and there was a pressure of memorials to the throne, detailing the marvels of foreign countries, and speaking of the advantage of attaching them, and the danger of

leaving them unsubdued. When any one sought the office of envoy, the Emperor—in view of the extreme distance which rendered such enterprises undesired by most men—accepted the volunteer, and gave him a token to raise followers, without making particular inquiry as to whence he came. A large reserve was thus raised for the service. These were sent to extend the open communications, and in their journeys to and fro there was almost invariably a robbery of the presents, or some failure on the part of the envoy. In order to maintain the efficiency of the service, the Emperor immediately caused an investigation into such cases, and filled up the places of defaulters, while inducements were held out to offenders to redeem themselves by meritorious conduct. When the facts regarding the missions were inquired into, innumerable breaches of law were treated with leniency; and when any of the officials died, his place was immediately filled up. In estimating the status of foreign kingdoms, for those reputed great, the envoy had a token of credence, and to the lesser an assistant envoy was sent. Hence a rivalry arose among those reckless talkers who were mere ciphers in action, and the envoys, all usurping official prerogatives, disposed of the presents at their own option, wishing to make purchases on easy terms for their own personal advantage. The foreign nations also became disgusted with the Chinese envoys, whose reports were full of glaring discrepancies. In view of the great distance of the Chinese army, these foreigners, who judged themselves safe from invasion in that direction, forbade the supply of provisions, in order to distress the Chinese missions. The envoys, thus reduced to extremities, were exasperated into hostilities. The petty kingdoms of Low-lan and Koo-sze, which lay on the high road, wantonly attacked and robbed the envoy Wang K'wei and his company; and the Chinese were being constantly intercepted and attacked by picked Heung-noo troops. The envoys emulated each other in speaking of the advantage to be gained by the subjugation of these kingdoms, and the danger of leaving them unrestrained; adding that the troops stationed in the cities were weak, and might easily be defeated. The Emperor thereupon sent Seaou Po-noo, the Marquis of Tsung-peaou, to take command of the cavalry of the subject kingdoms, with the troops from the several regions, to the number of several tens of thousands, to attack the Heung-noo, but the latter made off.

Next year an attack was made, when the troops of Seaou Po-noo carried off the King of Low-lan. Guard-houses were planted at intervals, from Tsew-tseuen to the Yuh Gate. Ta-wan and the other countries sent envoys to accompany the Chinese missions back, that they might see for themselves the magnitude of the empire. On such an occasion they presented ostrich eggs and conjurers from Le-keen, with which the Emperor was greatly delighted. The Chinese envoy had been to the source of the Yellow river, where the mountains contain abundance of jade and other precious stones, some of which he had selected and brought with him. The Emperor consulted an ancient hydrography of famous rivers, from

which he found, that the mountains whence this river issued were called the Kwān-lun range. About this time the monarch made several tours round the lakes, on which occasions he distributed money and silks, and made presents in generous profusion to the various parties from foreign kingdoms who were residing in the capital for a time, in order to show them the great wealth of China. The chief actor exhibited the wonders of his art in the choicest performances; and to the vast multitude of spectators assembled the Imperial hospitality was extended in pools of wine and forests of flesh meat, thus giving the foreign visitors to see the inexhaustible resources of the Imperial treasuries and stores, that so they might be duly impressed with the magnificence of the empire. When the feats of jugglery were added to the entertainment, the performance of the actors improved year by year, the great popularity of the fêtes dating from this period. The envoys from foreign countries continued to arrive without intermission. But the nations to the west of Ta-wan, all relying on their great distance, assumed a haughty and intractable bearing; and as they would not conform to the rites, they had to be submitted to restraint. Envoys were despatched from China with a vast retinue of followers; but the return envoys brought merely fair words to the Emperor. They reported that Ta-wan had excellent horses in the city of Urh-sze; but they refused to show them to the envoys. The Emperor, who was fond of the Ta-wan horses, heard this report with pleasure. He forthwith despatched the sturdy yeoman, Chay Ling, and others on a mission to the King of Ta-wan, with 1,000 ounces of gold, and a golden horse, to prefer a request for some of the famous horses in the city of Urh-sze. But Ta-wan already possessed a superabundance of Chinese objects, and the magnates consulting together, came to the following conclusion:—"China is at a great distance from our country, and travellers thence are frequently lost in the Salt Desert. If they leave by the northern route they are exposed to the Heung-noo raids; if they take the southern route they suffer for want of water and pasture, and at many parts of the road, where there are no settled inhabitants, great scarcity prevails. If the Chinese envoys come with a retinue of several hundred persons, more than half of them usually die of starvation on the way. How then can they possibly send an army? The Urh-sze horses are the most valuable horses in Ta-wan." Consequent on this, the demand of the Chinese envoy was met by an absolute refusal. The envoy was enraged, and gave way to unguarded utterances, hammered the golden horse into a shapeless mass, and left. The Ta-wan magnates became irritated, and said:—"The Chinese envoy has come to insult us." When they sent him away, orders were transmitted to the King of Yuh-ching on the eastern border, who intercepted and killed him, taking possession of his treasures. On hearing of this event, the Emperor was in a fury. Yaou Ting-han and the others who had been to Ta-wan, said the Ta-wan troops were feeble, and it would not require more than 3,000 able-bodied Chinese archers to subjugate the country. The Emperor had already sent the Marquis of

Chūh-ya, with a force of 700 cavalry, to chastise Low-lan, and he having at once taken the king prisoner, the Emperor was the more disposed to listen to the suggestion of Yaou Ting-han. Wishing at the same time for an opportunity to confer honour on his favourite concubine Madam Le, he appointed her relative Le Kwang-le General, with a commission to chastise Ta-wan.

Chang Këen's grandson Mäng, with the cognomen Tsze-yew, became distinguished for his abilities. In the reign of Yuen-te (B.C. 48-33) he was made Magnate of the Banqueting-house, and was sent on a mission to the Heung-noo. While holding the office of Secretary to the Censorate, he was calumniated by Shih-Heen, under the influence of which he committed suicide.

FEBRUARY 24TH, 1880.

E. BURNETT TYLOR, Esq., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks ordered to be returned to the respective donors :

FOR THE LIBRARY.

From the EDITOR.—Correspondenz-Blatt, December, 1879 ; January, 1880.

From the SOCIETY.—Achtzehnter Bericht der Oberhessischen Gesellschaft für Natur-und Heilkunde, November, 1879.

From Lieut. R. C. TEMPLE.—The Lord's Prayer in the South Andaman Language. By E. H. Man.

From the AUTHOR.—Notes on the Transliteration of the Burmese Alphabet. By Lieut. R. C. Temple.

From the AUTHOR.—The Lokaniti translated from the Burmese paraphrase. By Lieut. R. C. Temple.

From the AUTHOR.—Rough Notes on the Distribution of the Afghan Tribes about Kandahar. By Lieut. R. C. Temple.

From the AUTHOR.—Notes on the formation of the country from Kala Abdullah Khan in the Khójak Pass to Lugári Bárkhan. By Lieut R. C. Temple.

From the EDITOR.—"Nature," Nos. 537-538.

From the EDITOR.—"Revue Scientifique," Nos. 33-34.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1421-1422.

From the SOCIETY.—Transactions of the Imperial Society of Naturalists, Moscow, Tom. XXXIII, liv. I ; Tom. XXXIV,

- liv. 1; Tom. XXXV, pt. 1, liv. 2; Tom. XXXV, pt. 2, liv. 1-6; Tom. XXXVI, liv. 1, 2; Tom. XXXVIII, liv. 1.
- From Professor AGASSIZ.—Bulletin of the Museum of Comparative Zoology, Harvard College, Vol. VI, Nos. 1 and 2.
- From the INSTITUTION.—Journal of the Royal United Service Institution, Vol. XXIII, No. 103.
- From the EDITOR.—Revue Internationale des Sciences, No. 2, 1879.
- From the COLLEGE.—List of the Fellows, &c., of the Royal College of Physicians, 1880.
- From the SOCIETY.—Proceedings of the Royal Society, No. 200.
- From the SOCIETY.—Transactions of the Geological Society of Glasgow, Vol. VI, pt. 1.
- From the SOCIETY.—Proceedings of the Asiatic Society of Bengal, No. IX, 1879.
- From the SOCIETY.—Journal and Proceedings of the Royal Society of New South Wales, 1878.

JOHN HALL GLADSTONE, Esq., F.R.S., was elected a member of the Institute.

Dr. DALLY exhibited a collection of Ethnological objects from British Columbia.

The following paper was read by the Author:—

On the ORIGIN of the PLOUGH, and WHEEL-CARRIAGE.

By E. B. TYLOR, Esq., F.R.S., President.

THOUGH much has been written on that great engine of civilisation, the plough, yet the whole line of evidence as to its development from the simplest and earliest agricultural implements seems never to have been put together, so that I venture to lay before the Anthropological Institute the present notes.

Not only the beginning of agriculture, but the invention of the plough itself, are pre-historic. The plough was known to the ancient Egyptians and Babylonians, and the very existence of these nations points to previous thousands of years of agricultural life, which alone could have produced such dense, settled, and civilised populations. It was with a sense of what the plough had done for them, that the old Egyptians ascribed its invention to Osiris, and the Vedic bards said the Aëvins taught its use to Manu, the first man. Many nations have glorified the plough in legend and religion, perhaps never more poetically than where the Hindus celebrate *Sita*, the spouse of Râma, rising brown and beauteous, crowned with corn-ears, from

the ploughed field; she is herself the furrow (*sítá*) personified. Between man's first rude husbandry, and this advanced state of tillage, lies the long interval which must be filled in by other than historical evidence. What has first to be looked for is hardly the actual invention of planting, which might seem obvious even to rude tribes who never practise it. Every savage is a practical botanist skilled in the localities and seasons of all useful plants, so that he can scarcely be ignorant that seeds or roots, if put into proper places in the ground, will grow. When low tribes are found not tilling the soil but living on wild food, as apparently all mankind once did, the reason of the absence of agriculture would seem to be not mere ignorance, but insecurity, roving life, unsuitable climate, want of proper plants, and in regions where wild fruits are plentiful, sheer idleness and carelessness. On looking into the condition of any known savage tribes, Australians, Andamaners, Boto-cudos, Fuegians, Esquimaux, there is always one or more of these reasons to account for want of tillage. The turning-point in the history of agriculture seems to be not the first thought of planting, but the practical beginning by a tribe settled in one spot to assist nature by planting a patch of ground round their huts. Not even a new implement is needed. Wandering tribes already carry a stick for digging roots and unearthing burrowing animals, such as the *katta* of the Australians, with its point hardened in the fire (Fig. 1), or the double-ended stick which Dobrizhoffer ("Abipones," part ii, chap. 13) mentions as carried by the Abipone women to dig up eatable roots, knock down fruits or dry branches for fuel, and even, if need were, break an enemy's head with. The stick which dug up wild roots passes to the kindred use of planting, and may be reckoned as the primitive agricultural implement. It is interesting to notice how the Hottentots in their husbandry break up the ground with the same stone-weighted stick they use so skilfully in root-digging or unearthing animals. (J. G. Wood, "Natural History of Man," vol. i, p. 254). The simple pointed stake is often mentioned as the implement of barbaric husbandry, as when the Kurubars of South India are described as with a sharp stick digging up spots of ground in the skirts of the forest, and sowing them with ragy (Buchanan, "Journey through Mysore, etc.," in Pinkerton, vol. viii, p. 707); or where it is mentioned that the Bodo and Dhimal of North-East India, while working the ground with iron bills and hoes, use a 4-ft. two-pointed wooden staff for a dibble (B. H. Hodgson, "Aborigines of India," p. 181). The spade, which is hardly to be reckoned among primitive agricultural implements, may be considered as improved from the digging-stick by giving it a flat paddle-like

end, or arming it with a broad pointed metal blade, and afterwards providing a foot-step (*see* the Roman spade in Smith's "Dictionary of Greek and Roman Antiquities," s.v. "pala.") In the Hebrides is to be seen a curious implement called *cachrom*, a kind of heavy bent spade with an iron-shod point, which has been set down as a sort of original plough (Rau, "Geschichte des Pflugs," p. 16; Macculloch, "Western Islands," Pl. 30); but its action is that of a spade, and it seems out of the line of development of the plough. To trace this, we have to pass from the digging-stick to the hoe.

All implements of the nature of hoes seem derived from the pick or axe. Thus the New Caledonians are said to use their wooden picks both as a weapon and for tilling the ground. (Klemm, "Culturwissenschaft," part ii, p. 78). The *tima* or Maori hoe (Fig. 2), from R. Taylor's, "New Zealand and its Inhabitants," p. 423, is a remarkable curved wooden implement in one piece. It is curious that of all this class of agricultural implements, the rudest should make its appearance in Europe. Tradition in South Sweden points to waste pieces of once tilled land in the forests and wilds, as having been the fields of the old "hackers," and within a generation there was still to be seen in use on forest farms the "hack" itself (Fig. 3), made of a stake of spruce-fir, with at the lower end a stout projecting branch cut short and pointed (Hyltén-Cavallius, "Wärend och Wirdarne," part ii, p. 110; i, p. 43). Even among native tribes of America a more artificial hoe than this was found in use. Thus the hoe used by the North American women in preparing the soil for planting maize after the old stalks had been burnt is described as a bent piece of wood, three fingers wide, fixed to a long handle. (*See* Charlevoix, "Nouvelle France," Letter 23; Lafitau, "Mœurs des Sauvages Américains," vol. ii, p. 76, and Plate 7). (I do not venture to copy the hoe shown in this plate: a mere fancy picture.) In other North American tribes, the women hoed with a shoulderblade of an elk or buffalo, or a piece of the shell of a tortoise fixed to a straight handle. (*See* Loskiel, "Mission of the United Brethren in North America," p. 66; Catlin, "American Indians," vol. i, p. 121). From this stage we come up to implements with metal blades, such as the Kafir axe, which by turning the blade in the handle becomes an implement for hoeing (Lane Fox, "Lectures on Primitive Warfare," No. 2, p. 10). The heavy-bladed Indian hoe (Sanskrit *kuddāla*) called *kodāly* in Malabar (Klemm, "Culturwissenschaft," part ii, p. 123), which is shown here (Fig. 4), is one example of the iron-bladed hoe, of clumsy and ancient type. The modern varieties of the hoe need no detailed description here.

FIG. 1



FIG. 2

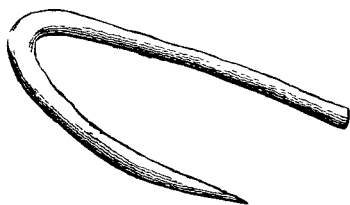


FIG. 3.

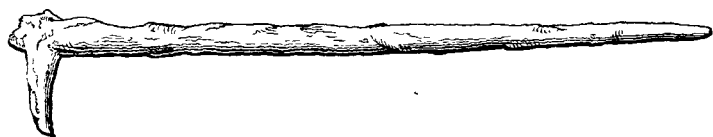


FIG. 4

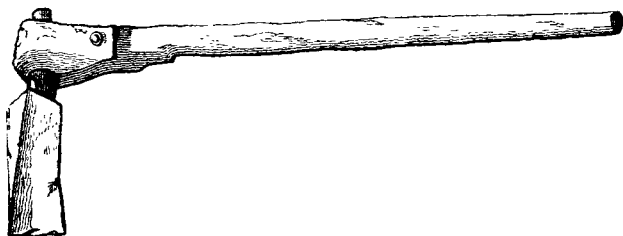
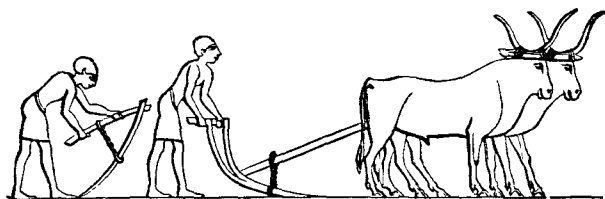


Fig. 1. Australian "Katta." Fig. 2, "Tima," or Maori Hoe.
Fig. 3, Swedish "Hack" Fig. 4, Indian Hoe.

That the primitive plough was a hoe dragged through the ground to form a continuous furrow, is seen from the very structure of early ploughs, and was accepted as obvious by Ginzrot (*"Wagen und Fahrwerke der Griechen und Römer,"* vol. i, and Klemm, *"Culturwissenschaft,"* part ii, p. 78). The evidence of the transitions through which agricultural implements have passed in Sweden during the last ten centuries or so, which was unknown to these writers, is strongly confirmatory of the same view. It appears that the fir-tree hack (Fig. 3) was followed by a heavier wooden implement of similar shape, which was dragged by hand, making small furrows; this "furrow-crook" is still used for sowing. Afterwards was introduced the "plough-crook," made in two pieces, the share with the handle, and the pole for drawing. The share was afterwards shod with a three-cornered iron bill, but the implement was long drawn by hand, till eventually it came to be drawn by mares or cows. (Hyltén-Cavallius, part ii, p. 111.) Thus in comparatively modern times a transformation took place in Sweden remarkably resembling that of which we have circumstantial evidence as having happened in ancient Egypt. The Egyptian monuments show a plough, which was practically a great hoe, being dragged by a rope by men. (See Denon, *"Antiquités de l'Égypte,"* vol. i, Pl. 68.) Still more perfect is the ploughing scene here copied in Fig. 5. (See Rosellini, *"Monu-*

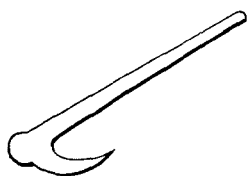
FIG. 5.



menti dell' Egitto, Pl. 32-3; Wilkinson, *"Ancient Egyptians,"* chap. 6.) Here the man who follows the plough to break up the clods is working with the ordinary Egyptian hoe, remarkable for its curved wooden blade longer than the handle, and prevented from coming abroad by the cord attaching the blade to the handle half-way down. This peculiar implement, with its cord to hold it together, reappears on a larger scale in the plough itself, where the straight stick is lengthened to form the pole by which the oxen draw it, and a pair of handles are added by which the ploughman keeps down and guides the plough.

The Valley of the Nile, where the lightness and richness of the alluvial soil is favoured by the inundations with their fresh deposit of river mud, was no doubt one of the regions where the higher agriculture earliest arose, and looking at this sketch of hoeing and ploughing, we might be tempted to think that here the transition from the barbaric hoe to the civilised plough is to be seen as it first took place in the world. Egypt may possibly have been the birthplace of the plough, but so many forms of rude ploughs are to be found represented on coins and sculptures

FIG. 6.

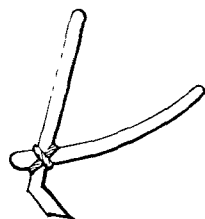


of the ancient world, that it is safer to be content with the general idea that they are enlarged and transformed hoes, without attempting to fix the date, place, and nation, to which this inventive transformation belongs. The following figures are selected from those copied by Ginzrot and Rau. The old Syracusan form (Fig. 6), as likewise some old Etruscan patterns, are remarkable as being so close to the original hoe-pattern as not to have the tail or handle. This want is supplied in other rude forms of ancient Italy, of which Fig. 7 shows one. A more angular Roman form is thought to represent the ceremonial plough, with which the wall-line was traced in founding a new city, and Fig. 8 is another archaic

FIG. 7.



FIG. 8.

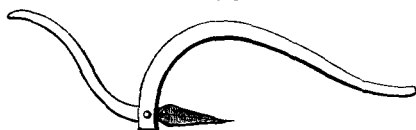


form; the projection of the pole behind was for the ploughman's foot to press the share down.

Depresso incipiat jam tum mihi taurus aratro
Ingemere, et sulco attritus splendescere vomer.
(Virg. Georg. I, 45.)

Fig. 9 is Greek, from an early MS. of Hesiod's "Works and Days." Looking at forms of plough as rude as these to be seen at this day in Asia and

FIG. 9.

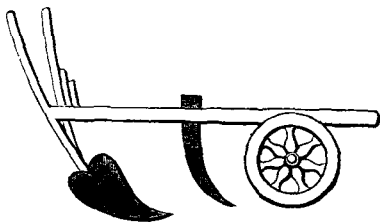


in backward countries of Europe, one wonders to find that already in classic ages the husbandman had ploughs of construction far more nearly approaching that of our best modern implement-makers. Pliny (xviii, c. 48), after describing the simpler kinds of plough, mentions that in Rhetia, a plough with the addition of two

small wheels had been recently invented, and was used for land already under tillage. He also mentions the coulter (*culter*). This knife, fixed in front to make the first cut ready for the share to turn the sod, is a great improvement on the primitive ploughs, where the ploughshare has to do the whole work. In Pliny's

FIG. 10.

time, though only forming part of some ploughs, it was evidently well-known. Thus he recognises the whole construction of the wheel-plough (Fig. 10) as figured by Caylus from an ancient gem. The ordinary modern plough used

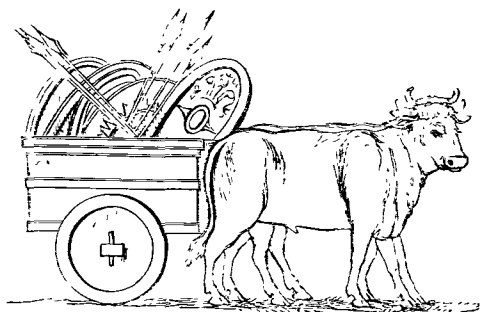


by the English farmer improves upon this rather in details of construction and material than in essential principle, though a new start in invention is taken by the self-acting plough which no longer needs the ploughman to follow at the plough-tail, and by the steam-plough which substitutes engine-traction.

The plough, drawn by oxen or horses, and provided with wheels, has taken on itself the accessories of a wheel-carriage. But when the plough is traced back to its earliest form of a hoe dragged by men, its nature has little in common with that of the vehicle. Though the origin of the wheel-carriage is even more totally lost in pre-historic antiquity than that of the plough, there seems nothing to object to the ordinary theoretical explanation (*see* Reuleaux, "Kinematics of Machinery," and others), that the first vehicle was a sledge dragged along the ground, that when heavy masses had to be moved, rollers were put under the sledge, and that these rollers passed into wheels forming part of the carriage itself. The steps of such a transition, with one notable exception which will be noticed, are to be actually found. The sledge was known in ancient Egypt (*see* the well-known painting from El Bersheh of a colossal statue being dragged by men with ropes on a sledge along a greased way, Wilkinson, "Ancient Egyptians," vol. iii.) On mountain-roads, as in Switzerland, as well as on the snow in winter, the sledge remains an important practical vehicle. The use of rollers under the sledge was also familiar to the ancients (*see* the equally well-known Assyrian sculpture of the moving of the winged bull, in Layard's "Nineveh and Babylon," p. 110.) If now the middle part of the trunk of a tree used as a roller were cut down to a mere axle, the two ends remaining as solid drums, and stops were fixed under the sledge to prevent the axle from running away, the result would be the rudest imaginable cart. I am not aware that this can be traced any-

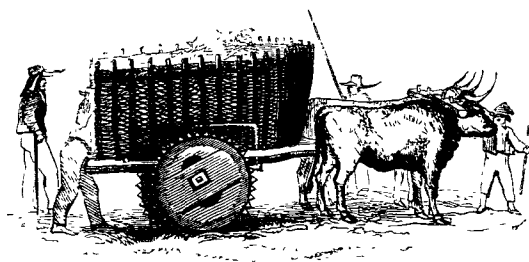
where in actual existence, either in ancient or modern times; it found, it would be of much interest as vouching for this particular stage of invention of the wheel-carriage. But the stage which would be theoretically the next improvement, is to be traced in practical use; this is to saw two broad drums off a tree-trunk, and connect them by a stout bar through their

FIG. 11.



centres, pinned fast, so that the whole turns as a single roller. The solid drum-wheel was used in the farm-carts of classic times (*see* the article "Plaustrum," by Yates, in Smith's "Dictionary of Greek and Roman Antiquities"). The ox-wagon here shown is taken from the Antonine column (Fig. 11); it appears to have solid wheels, and the square end of the axle proves that it and its drum-wheels turned round together in one. A further improvement was to make the wheel with several pieces nailed together, which would be less liable to split. The ancient Roman farm-carts were mostly made with such wheels, as are their successors which are used to this day with wonderfully little change, as in Greece and Portugal. The bullock-cart of the Azores (Fig. 12) (from Bullar, "Winter in the Azores," vol. i.,

FIG. 12.



p. 121) is a striking relic from the classic world ; its wheels are studded with huge iron nails by way of tire. From old times it was common to make wooden rings, sockets, or bearings underneath the cart for the axle to turn in, much as children's toy-carts are made, as has often been remarked. But a drawing of a modern bullock-cart taken near Lisbon, represents only a pair of pieces of wood acting as stops, so that the body of the cart can be lifted off its wheels. In looking at these clumsy vehicles we certainly seem to have primitive forms before us. There is, however, the counter-argument which ought not to be overlooked, and which in some measure accounts for the lasting-on of these rude carts, namely, that for heavy carting across rough ground they are convenient, as well as cheap and easily repaired. Considering that the railway-carriage builder gives up the coach-wheel principle, and returns to the primitive construction of the pair of wheels fixed to the axle turning in bearings, we see that our ordinary carriage-wheels turning independently on their axles are best suited to comparatively narrow wheels, and to smooth ground or made roads. Here they give greater lightness and speed, and especially have the advantage of easily changing direction and turning, which in the old block-wheel cart can only be done by gradually slewing round in a wide circuit.

As early as history goes back, the carriage-builder had already begun to make spoked-wheels with metal tires, whose well-made nave turned smoothly on the axle. It is needless here to extract from Wilkinson and Layard particulars of the beautifully-made Egyptian and Assyrian chariots, nor to go into details of classic, mediæval, and modern carriage-building. As bearing on the origin of the art, it must be noticed that the point where the developments of the plough and carriage join, is in the way of attaching the drawing oxen or horses, which was much alike in both. The pole and yoke was no doubt the original mode of draught, not only for the plough and the heavy ox-cart, where it may be often seen still, but also for the chariot and light car. (*See* "Schlieben, Die Pferde des Alterthums," p. 154.) The war-chariot, with its yoked steeds, has a remarkable similarity wherever we meet with it in the ancient world, which seems to point to its invention by some one particular nation, though which has not yet been made out, whence it spread to distant countries. How such inventions found their way is well shown in a point of detail, which incidentally shows how far the ancient Britons were from the uncivilised state popularly attributed to them, namely, their use (*Mela* iii, 6) of scythe-chariots, such as were used in Oriental armies, like that of Darius (*Diod. Sic.* xvii, 53), or of Antiochus Eupator, when

he came into Judea with horsemen and elephants, and 300 scythe-chariots (2 Maccab. xiii, 2). War-chariots were from the first drawn by the pole. The Homeric chariots appear to have been without traces, as where in the Iliad (vi, 40), Adrastus' scared horses snap the pole amid the tangled tamarisk, and set off straight for the city, evidently having nothing but the pole to hold them. In ancient Egypt, one inner trace was used, but the stress was on the pole. Eventually, in looking at the harness of various nations, we come to the present plan of draught by collar and traces. The change is interesting, as seeming to prove that the earliest use of draught-cattle is that still seen in the yoke of oxen. It has been argued by Pictet ('Origines Indo-Européennes, part ii, p. 94)), that the yoke, Sanskrit *yuga* = that which *joins*, was first invented for the pair of oxen to draw the plough with, it being likely that they were first put to this heavy work, and afterwards used for drawing carts, rather than that the idea of drawing a cart by oxen should have occurred before putting them to plough. This, though not absolutely certain, seems a very reasonable argument, while the yoke and pole being so much better suited to the ox than to the horse, points to oxen as the earliest draught-beasts. The history of successive changes seems well shown in the Latin *jumentum*, a beast of burden, from *jugumentum* = yoke-ment, which word keeps up the memory of the original yoke, though other modes of transporting burdens had come in. The Latin *jumentum* is used for the horse, etc., but not for the ox, and French *jument* has still further lost the old idea, now meaning merely a mare. One further remark is suggested by the harness of the ancient Egyptian chariot, where the yoke is provided with two saddles coming down on the withers of the horses. As is well known, cavalry was by no means general among the armies of the ancient world. The early Aryans, like the Homeric heroes, were charioteers, not horsemen, nor are there any ancient Egyptian horsemen to be seen on the monuments. On the other hand, the warriors of Palestine are there to be seen on horseback, and horse-soldiers appear on the Assyrian sculptures. In old times, however, the horseman is mostly seen riding a bare-backed horse, or with a cloth or pad only. It seems to have been gradually that saddles proper began to be used in Assyria, and among the Greeks and Romans. Looking now at the Egyptian yoke-saddles of the chariots, one may suspect that from them were derived not only the harness-saddles in modern use, but also our riding-saddles.

DISCUSSION.

Mr. DICKINS remarked that the Chinese language—that great repository of ancient facts—corroborated the President's observations upon the hardened stick as the earliest instrument of tillage. The Chinese character, *lei*, for spade, to dig, etc., consisted of the character for tree or wood, combined with an abbreviation of a character meaning easy, the whole being simply a piece of wood, perhaps a mere branch, shaped so as to be easily used for turning up the ground. This was developed, by having a broad and flattened end, into a sort of wooden spade, the blade of which was afterwards made of metal. The Chinese plough seemed to be derived from this spade, rather than from any kind of hoe. The character for plough, *li*, consisted of the character for "ox," surmounted by an abbreviation of a sign meaning "black"—the black ox being the most prominent object on the cultivated plain—thence we may suppose that in China the plough was always worked by an ox, not by human agency. The plough did not appear to be much used in husbandry in China, where spade and hoe cultivation predominated. The same was the case in Japan; where, indeed, Mr. Dickins did not remember ever to have seen a plough at work. The Japanese name for plough, *kara-suki*, meant a Chinese (*kara*) spade or digger (*suki*). With respect to wheeled vehicles, he (Mr. Dickins) had seen Chinese pictures representing the drum-wheel or mere disc of wood, which was sometimes perforated with holes, round or otherwise shaped, arranged symmetrically, no doubt to lighten the wheel. This perhaps was a link between the drum-form and the wheel of the present day. While on this subject, Mr. Dickins begged to call attention to two most extraordinary modes of vehicular locomotion common in the Far East: the wheelbarrows in North China, adapted for the muddy paths with raised narrow stone causeway in the middle, and the jinrikshas of Japan. The word "jinriksha" was not Japanese, but Chinese, meaning man-power vehicle. Up to about ten years ago they were unknown in Japan, kagos and norimons alone being used on journeys of any length. The jinriksha was like a hansom cab with the top removed; in the shafts was not a horse, but a man, who could drag his fare along at an average rate on good ground of about 5 miles an hour, and as much as 30 miles without change of coolie. These vehicles were, it is said, invented by an American Missionary in Japan; they are hung upon springs, and are probably not a Japanese invention. The extraordinary thing about them was the marvellous rapidity with which they superseded kagos, which in a few years had almost disappeared from the country. In Yedo there were over 20,000 of these strange vehicles plying for hire. There they fulfilled the office of our cabs. The quickness with which they were adopted showed the imitative faculty of the Japanese; while the fact that for so many hundred years they had remained without them, betrayed their want of inventive power—

the more so, in that a sort of cart drawn by men and capable of holding several passengers had been in use for many years, centuries probably, on some parts of the Tòkaidō. Mr. Dickins referred to the Chinese Book of Nature ("San-tsai-t'u) and the Japanese "Wakansansai'dzu-ye" (founded on the first-named work), with the "Kin-mô-dzu-i" ("Illustrated Instructor of Youth").

Mr. W. G. SMITH remarked that very ancient agricultural implements were, in all probability, mounted with stone. He said he had found it by no means uncommon whilst going over ancient British positions, to find large pieces of worked flint, differing materially in shape from axe and adze forms. The former large pieces were, he said, generally somewhat rude, and might be looked upon as the mounting-pieces of ancient hoes or even ploughshares. Mr. Smith exhibited a large flint implement from his collection, worked to a hoe or ploughshare form.

MARCH 9TH, 1880.

FRANCIS GALTON, Esq., F.R.S., *Vice-President, in the Chair.*

The minutes of the last meeting were read and confirmed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the EDITOR.—"Nature," Nos. 539, 540.

From the EDITOR.—"Revue Scientifique," Nos. 35, 36, 37.

From the EDITOR.—"The Athenæum," Part 626.

From the EDITOR.—Correspondenz-Blatt, February, 1880.

From the EDITOR.—Matériaux pour l'histoire de l'homme, Tom. X, 1879.

From the SOCIETY.—Journal of the Society of Antiquaries, Vol. VIII, No. 1.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1423–1424.

From the SOCIETY.—Proceedings of the Royal Geographical Society, Vol. II, No. 3.

From the BERLIN ANTHROPOLOGICAL SOCIETY.—Zeitschrift für Ethnologie, 1879, Heft 3–5.

From the ACADEMIE ROYALE DES SCIENCES A AMSTERDAM.—Verslagen en Mededelingen, Afd. Natuurk, 2e Rks. Dl. XIV. Jaarboek, 1878.

Processen-Verbaal, 1878–9.

From E. W. BRABROOK, Esq.—"Was Adam the first Man created?" By Argus.

From the AUTHOR.—Dolmens in Japan. By Edward S. Morse.

From the AUTHOR.—Description of Human Remains found near Donnybrook, Co. Dublin. By W. Frazer, F.R.C.S.I., M.R.I.A.

Mr. GILL exhibited a number of photographs of Australian Aborigines.

The following paper was read by the author :—

VISUALISED NUMERALS. By FRANCIS GALTON, F.R.S.

I PROPOSE to describe a peculiar habit of mind which characterises, so far as I can judge, about one man in 30, and one woman in 15; but before doing so, I must say a word of warning against a too-frequent tendency to assume that the minds of every other sane and healthy person must be like one's own. The psychologist should inquire into the minds of others as he should into those of animals of different races, and be prepared to find instances of much to which his own experience can afford little, if any, clue.

This is especially the case with psychologists who are not *imaginative* in the strict but unusual sense of that ambiguous word. I do not by imagination mean an uncontrolled fancy and inaccurate recollection. I apply the word *imaginative* to those who while they may be exceedingly matter-of-fact and precise, are apt to think in visual images; not in fancied words, nor in a more abstract manner. The mental state of imaginative persons is amidst a series of pictures, vivid in colour, and well defined in form, and it happens in many cases that what they mentally see appears external to themselves. There is no doubt that abstract thought is best carried on without the aid of this concrete imagery, and that a natural tendency to indulge in it is liable to be repressed by vigorous brain-workers. It is consequently uncommon among those scientific men whose attention I chiefly desire to gain. Every one, however, recognises the fact that some men of the highest order of genius and artistic temperament have had the gift of vivid mental presentation in a remarkable degree; they also know that chess-players exist, who have no mean capacity in other respects, who can play 10 or more games blindfold, having all the time a perfectly vivid picture of each board in succession before them, and seeing the chessmen on each, as made of wood or ivory, as the case may be. I therefore ask you all to take for granted the existence of imaginative persons, in the sense of the word in which I have used it, although many of yourselves may never have had the tendency to think in visual forms, or if you once had it, may have long since abandoned it.

Let me also remark, that if the existence of colour-blindness which affects about 1 man in 30 was unsuspected, or at all events wholly undescribed and unnamed, until the time of Dalton, it need not astonish us that the psychological peculiarity which I am about to describe, and which is about equally rare (at least in adults), should hitherto have escaped notice.

Persons who are imaginative almost invariably think of *numerals* in visual imagery. If the idea of *sic* occurs to them, the word "six," does not sound in their mental ear, but the figure 6 in a written or printed form rises before their mental eye. The clearness of the images of numerals, and the number of them that can be mentally viewed at the same time, differs greatly in different persons. The most common case is to see only two or three figures at once, and in a position too vague to admit of definition. There are a few persons in whom the visualising faculty is so low that they can mentally see neither numerals nor anything else; and again there are a few in whom it is so high as almost to give rise to hallucinations. The images of these persons, whether of numerals or not, are so vivid as to be undistinguishable from reality, except by the aid of accidental circumstances; thus the images may be transparent, or apt to vary in brightness from moment to moment, and to change more or less in outline. They may appear in the air without support, or any other of the innumerable conditions of objective reality may be absent, the want of which will render the visionary character of the image immediately manifest to a sane mind. Those who are able to visualise a numeral with a distinctness comparable to reality, and to behold it as if it were before their eyes, and not in some sort of dreamland, will define the direction in which it seems to lie, and the distance at which it appears to be. If they were looking at a ship on the horizon at the moment that the figure 6 happened to present itself to their minds, they could say whether the image lay to the left or right of the ship, and whether it was above or below the line of the horizon; they could always point to a definite spot in space, and say with more or less precision that that was the direction in which the image of the figure they were thinking of first appeared.

Now the strange psychological fact to which I desire to draw attention is that among persons who visualise figures clearly, there are many who notice that the image of the same figure invariably makes its first appearance in the same direction, and at the same distance. Such a person would always see the figure when it first appeared to him at (we may suppose) one point of the compass to the left of the ship at which he was looking, and upon the line of the horizon, and at 20 feet distance. Similarly,

we may suppose that he would see the figure 7 invariably half a point to the left of the ship and at an altitude equal to the sun's diameter above the horizon, and at 30 feet distance; similarly for all the other figures. Consequently, when he thinks of the series of numerals 1, 2, 3, 4, &c., they show themselves in a definite pattern that always occupies an identical position in respect to the direction in which he is looking.

Those who do not see figures with the same objectivity, use nevertheless the same expressions with reference to their *mental* field of view. They can draw what they see in a manner fairly satisfactory to themselves, but they cannot locate it in reference to their axis of sight and to the horizontal plane that passes through it. It is with them as it is with all of us in dreams, the imagery is before and around, but our eyes during sleep are turned inwards and upwards.

The pattern or "Form" in which the numerals are seen is by no means the same in different persons, but assumes the most grotesque variety of shapes. I have placed on the table or suspended against the walls copies of nearly sixty of them, which will be seen to run in all sorts of angles, bends, curves and zigzags. They have however for the most part certain characteristics in common. They are stated in all cases to have been in existence, at least so far as the earlier numbers in the Form are concerned, as long back as the memory extends; they come into view quite independently of the will, and their shape and position, at all events in the *mental* field of view, is nearly invariable. They have other points in common to which I shall shortly draw attention, but first I will endeavour to remove all shadow of doubt as to the authenticity of these statements.

I see no "Form" myself, and first ascertained that such a thing existed through a letter from Mr. Bidder, in which he described his own case as a very curious peculiarity. I was at the time making inquiries about the strength of the visualising faculty in different persons, and among the numerous replies that reached me I soon collected ten or twelve other cases in which the writers spoke of their seeing numerals in definite forms and in much the same terms that Mr. Bidder had used. Though the information came from independent sources, the expressions used were so closely alike that they strongly corroborated one another. Of course I eagerly followed up the inquiry, and when I had collected enough material to justify publication, I wrote an account which appeared in "Nature" on January 15th, with several illustrations. This has led to a wide correspondence and to a much increased store of information, which enables me to arrive at the conclusions I shall lay before you. The answers I received whenever I have pushed my questions have been

straightforward and precise. I have not unfrequently procured a second sketch of the Form and found it to agree closely with the first one. I have also questioned many of my own friends in general terms as to whether they visualise numbers in any particular way. The large majority are unable to do so. But every now and then I meet with persons who possess the faculty, and I have become familiar with the quick look of intelligence with which they receive my question. It is as though some chord had been struck which had not been struck before, and the verbal answers they give me are precisely of the same type as those written ones of which I have now so many. I cannot doubt of the authenticity of independent statements which closely confirm one another, nor of the general accuracy of the accompanying sketches, because I find now that my collection is large enough for classification, that they tend to form a continuous series. I am often told that the peculiarity is common to the speaker and to some near relative, and that they had found such to be the case by accident. I have the strongest evidence of its hereditary character after allowing, and over allowing, for all conceivable influences of education and family tradition.

Last of all, I have taken advantage of the opportunity afforded by a meeting of this Society, to bring with me many gentlemen well known in the scientific world, who have this habit of seeing numerals in Forms, and whose diagrams are in the collection before you. Amongst them are Mr. G. Bidder, Q.C., the Rev. Mr. G. Henslow, the botanist, Mr. Schuster, F.R.S., the physicist, Mr. Roget, Mr. Woodd Smith, and Colonel Yule, C.B., the geographer. I wish that some of my foreign correspondents could also have been present, such as M. Antoine d'Abbadie the well-known French traveller and Membre de l'Institut, and Baron v. Osten Sacken, the Russian diplomatist and entomologist, for they have given and procured me much information.

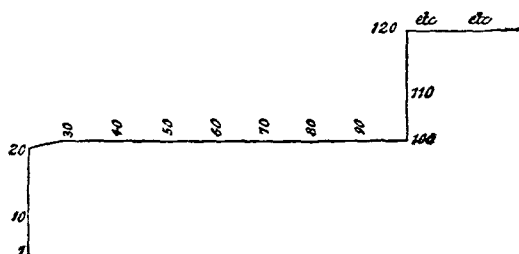
I feel sure that I have now said enough to authenticate my data; it remains to treat them in the same way as any other scientific facts and to extract as much meaning from them as possible.

To repeat in part what has already been said, this peculiarity is found so far as my observations have extended, in about 1 out of every 30 adult males or 15 females. It consists in the sudden and automatic appearance of a vivid and invariable "Form" in the mental field of view, whenever a numeral is thought of, and in which each numeral has its own definite place. This Form may consist of a mere line of any shape, of a peculiarly arranged row or rows of figures, or of a shaded space.

I give woodcuts of some of these forms, and very brief descriptions of them extracted from the letters of my correspon-

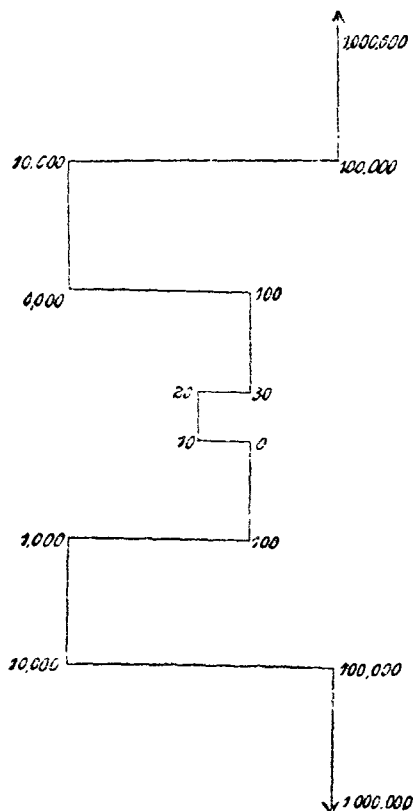
dents. (The woodcuts have already appeared in "Nature."* Many other drawings on a smaller scale on two lithographed plates will be found at the end of these pages, and brief descrip-

J.S.



tions of some of them are given partly in an appendix, and partly by the sides of the figures themselves.)

I.J.C.

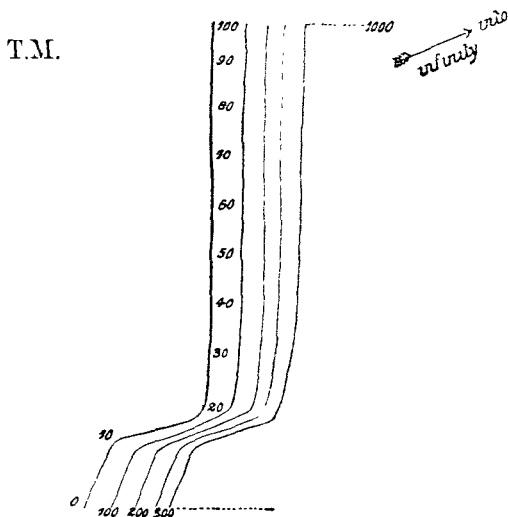


* I am indebted to the courtesy of the publishers of "Nature" for the use of these woodcuts.

I.S. "The figures are about a quarter of an inch in length, and in ordinary type. They are black on a white ground. 200 generally take the place of 100 and obliterate it. There is no light or shade, and the picture is invariable."

I.J.C. "The accompanying figure lies in a vertical plane, and is the picture seen in counting. The zero point never moves, it is *in* my mind; it is that point of space known as "here," while all other points are outside or "there." When I was a child the zero point began the curve; now it is a fixed point in an infinite circle . . . I have had the curious bending from 0 to 30 as long as I can remember, and imagine each bend must mark a stage in early calculation. It is absent from the negative side of the scale, which has been added since childhood."

T.M. "The representation I carry in my mind of the numerical series is quite distinct to me, so much so that I cannot think of any number but I at once see it (as it were) in its peculiar place in the diagram. My remembrance of dates is also nearly entirely dependent on a clear mental vision of their *loci* in the diagram. This, as nearly as I can draw it, is the following:—

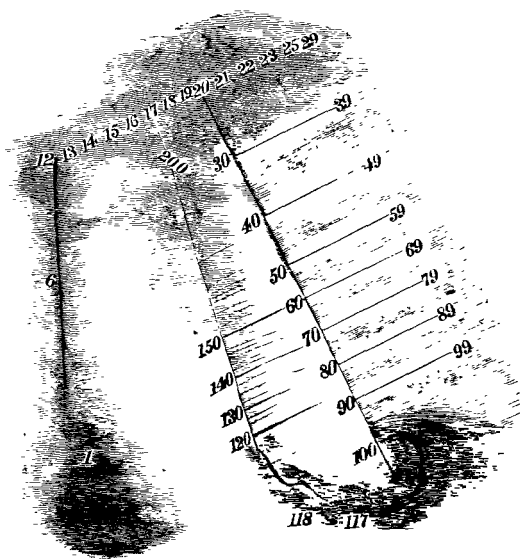


It is only approximately correct (if the term "correct" be at all applicable). The numbers seem to approach more closely as I ascend from 10 to 20, 30, 40, &c. The lines embracing a hundred numbers also seem to approach as I go on to 400, 500, to 1,000. Beyond 1,000 I have only the sense of an infinite line in the direction of the arrow, losing itself in darkness towards the millions. Any special number of thousands returns

in my mind to its position in the parallel lines from 1 to 1,000. The diagram was present in my mind from early childhood; I remember that I learnt the multiplication table by reference to it at the age of seven or eight. I need hardly say that the impression is not that of perfectly straight lines; I have therefore used no ruler in drawing it."

D.A. "From the very first I have seen numerals up to nearly 200 range themselves always in a particular manner, and in thinking of a number it always takes its place in the figure. The more attention I give to the properties of numbers and their interpretations, the less I am troubled with this clumsy framework for them, but it is indelible in my mind's eye even when for a long time less consciously so. The higher numbers are to me quite abstract and unconnected with a shape. This rough and untidy production is the best I can do towards representing what I see. There was a little difficulty in the performance, because it is only

D.A.



by catching oneself at unawares, so to speak, that one is quite sure that what one sees is not affected by temporary imagination. But it does not seem much like, chiefly because the mental picture never seems *on* the flat but *in* a thick, dark grey atmosphere deepening in certain parts, especially where 1 emerges, and about 20. How I get from 100 to 120 I hardly know, though if I could require these figures a few times without thinking of them on purpose, I should soon notice. About 200 I lose all framework. I do not see the actual figures very distinctly, but what

there is of them is distinguished from the dark by a thin whitish tracing. It is the place they take and the shape they make collectively which is invariable. Nothing more definitely takes its place than a person's age. The person is usually there so long as his age is in mind."

[The engraver took much pains to interpret the meaning of the rather faint but carefully made drawing, by strengthening some of the shades. The result was very satisfactory, judging from the author's own view of it, which is as follows:—"Certainly if the engraver has been as successful with all the other representations as with that of my shape and its accompaniments, your article must be entirely correct."]

In some cases the mental eye has to travel along the faintly-marked and blank paths of a form, to the place where the numeral that is wanted is known to reside, and then the figure starts into sight. In other cases all the numerals as far as 100 or more, are faintly seen at once, but the figure that is wanted grows more vivid than its neighbours; in one of the cases it rises as if an unseen hand had lifted it. There are as many varieties as there are persons, but I will not now describe their shapes in detail, partly because I want to draw attention to the points they have in common, and principally because I hope that some of the forms will be explained by the persons themselves who see them. I have, however, written at the side of each of the pictures that are suspended against the walls, those details which are required to explain their individual peculiarities.

It is beyond dispute that these forms originate at an early age, though they are so far developed in boyhood and youth as to include the higher numbers, and, among mathematical students, the negative values.

Nearly all of my correspondents speak with confidence of their forms having been in existence as far back as they recollect. One states that he knows he possessed it at the age of four; another, that he learnt his multiplication table by the aid of the elaborate mental diagram he still uses. Not one in ten is able to suggest any clue as to their origin. They cannot be due to anything written or printed, because they do not simulate what is found in ordinary writings or books.

The figures run frequently to the left, and more often upwards than downwards. They do not even lie in the same plane. Sometimes a form has twists as well as bends, sometimes it is turned upside down, sometimes it plunges into an abyss of immeasurable depth, or it rises and disappears in the sky. In one case it proceeds at first straightforward, then it makes a backward sweep high above head, and finally recurves into the pocket, of all places! It is often sloped upwards at a slight

inclination from a little below the level of the eye, just as objects on a table would appear to a child whose chin was barely above it.

All this contrasts strongly with the character of the Forms under which historical dates are visualised by the same persons. These are sometimes copied from the numerical ones, but they are more commonly based both clearly and consciously on the diagrams used in the school-room.

The same may be said of the imaged letters of the alphabet; therefore the numerical Form is the oldest of all. I suppose that it first came into existence when the child was learning to count, and was used by him as a natural mnemonic diagram, to which he referred the spoken words "one," "two," "three," &c. Also, that as soon as he began to read figures, their visual symbols supplanted the verbal sounds, and permanently established themselves on the Form.

Hence the Form is of an older date than that at which the child began to learn to read; it represents his mental processes at a time of which no other record remains. It persists in vigorous activity, and offers itself freely to our examination.

The teachers of some schools have kindly questioned their pupils for me, and I find that the proportion of young people who see numerals in Forms is much greater than that of adults. But for the most part their forms are neither well defined nor complicated. I conclude that when they are too faint to be of service they are gradually neglected, and become wholly forgotten, while if they are vivid and useful they increase in vividness and definition by the effect of habitual use. Hence, in adults, the two classes of seers and non-seers are rather sharply defined, the connecting link of intermediate cases which is observable in childhood having disappeared.

These Forms are the most remarkable existing instances of what is called "topical" memory, the essence of which appears to lie in the establishment of a more exact system of division of labour in the different parts of the brain than is usually carried on. Topical aids to memory are of the greatest service to many persons, and teachers of mnemonics make large use of them, as by advising a speaker to mentally associate the corners, &c., of a room with the chief divisions of the speech he is about to deliver. Those who feel the advantage of these aids most strongly are the most likely to cultivate the use of numerical forms.

The question remains, why do the lines of the Forms run in such strange and peculiar ways? the reply is, that different persons have natural fancies for different lines and curves. Their handwriting shows this, for handwriting is by no means

solely dependent on the balance of the muscles of the hand, causing such and such strokes to be made with greater facility than others. Handwriting is greatly modified by the fashion of the time. It is in reality a compromise between what the writer most likes to produce, and what he can produce with the greatest ease to himself. I am sure, too, that I can trace a connection between the general look of the handwritings of my various correspondents and the lines of their Forms. If a spider were to visualise numerals, we might expect he would do so in some web-shaped fashion, and a bee in hexagons. The definite domestic architecture of all animals as seen in their nests and holes, shows the universal tendency of each species to work according to definite lines. The same is seen in the groups and formations of flocks of gregarious animals, and in the wedge-shaped or other flights of gregarious birds.

The rambling character of the lines that characterise the majority of the Forms are natural to the taste of a child. They may be recognised in their drawings, in the castles they construct on the sand, and in the outlines of the borders of their flower-gardens. The appreciation of firm curves can hardly co-exist with the imperfectly developed physique of the child; it is related to the accurate hand, the steady tread, and the generally well-adjusted muscles of manhood. A natural instinct in favour of those rigidly straight lines in which printed matter is disposed in schedules, or of the circular outlines of many diagrams, can hardly as yet have become frequent in our race. No savage possesses it. Our habitual use of the straight line and circle has grown up as it were yesterday, under the requirements of manufactures based on careful measurements with a rule, and carried out by the plane and the turning lathe, which instruments make it now much more easy to work in accordance with these lines than any other. The rambling numerical Forms being based on the instinctive preferences of childhood, show the solidity of their foundation by persisting in defiance of subsequently acquired tastes.

Children learn their figures to some extent by those on the clock. I cannot, however, trace the influence of the clock on the numerical Forms in more than three cases out of all my collection, which amounts to nearly 80 pictures of one kind or another. In one of them, the clock-face actually appears; in another it has evidently had a strong influence; and in the third, its influence is indicated, but nothing more. I suppose the Roman numerals in the clock do not fit in sufficiently well with ideas based upon the Arabic ones.

The paramount influence proceeds from the names of the numerals. Our nomenclature is perfectly barbarous, and that of other civilised nations is not better than ours and frequently

worse, as the French "quatre-vingt dix-huit." We speak of ten, eleven, twelve, thirteen, etc., in defiance of the beautiful system of decimal notation in which we write those numbers. What we see is one-nought, one-one, one-two, etc., and we should pronounce on that principle, with this proviso, that the word for the one having to show both the place and the value, should have a sound suggestive of "one" but not identical with it. Let us suppose it to be the letter *o* pronounced short as in "on," then instead of ten, eleven, twelve, thirteen, etc., we might say *on-one, on-two, on-three*, etc.

The conflict between the two systems creates a perplexity, to which conclusive testimony is borne by these numerical forms. In almost all of them there is a marked hitch at the 12, and this repeats itself at the 120. The run of the lines between 1 and 20 is rarely analogous to that between 20 and 100, where it usually first becomes regular. The teens frequently occupy a larger space than their due. It is not easy to define in words the variety of traces of the difficulty and annoyance caused by our unscientific nomenclature that are portrayed vividly, and so to speak painfully, in these pictures. They testify by the evidence of indelible scars to the effort and ingenuity with which a sort of compromise is struggled for and has finally been effected between the verbal and decimal systems. I am sure that this difficulty is more serious and abiding than has been suspected, not only from the persistency of these twists which would have long since been smoothed away if they did not continue to subserve some useful purpose, but from the results of experiments on my own mind. I find I can deal mentally with simple sums with much less strain if I audibly conceive the figures as one-nought, one-one, etc., and I can both dictate and write from dictation with much less trouble when that system or some similar one is adopted. I have little doubt that our nomenclature is a serious though unsuspected hindrance to the ready adoption by the public of a decimal system of weights and measures.

These Forms are no doubt of some convenience for mnemonic purposes, and it is worth considering what shape is most likely to suit the majority of those who wish for the first time to make one for their use. It ought of course to be based on the decimal system, and judging from the majority of the Forms it need not go higher than 100. I am sure that symmetrical divisions at each ten would be too elaborate and uniform for general convenience, and that a system of scores and half scores would be the best. In short a pentagon, with a mark in the middle of each side, seems most likely to fulfil the conditions; it certainly suits me well. In that figure the angle at the bottom would stand indifferently for 0 or 100, and the other angles for 20, 40, 60,

and 80; the place of 50 being in the middle of the horizontal top line. I find that my own mind has a decided left-handed twist, so that I cannot without an effort reckon the divisions in this imaginary pentagon in the direction in which the hands of a clock would move, but I must proceed reverse ways.

This concludes what I desired to say, and I trust that the gentlemen whose names I have mentioned will kindly explain their own Forms and favour us with any remarks that may help to throw light on this curious subject. The lithographed page with 8 drawings contains copies of their Forms (made by a camera lucida) from those they were so good as to send me, and the following are brief explanatory extracts from their letters. The other lithograph contains 24 forms of other persons; they will sufficiently explain themselves.

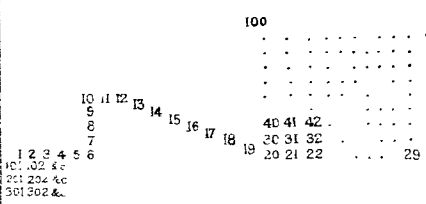
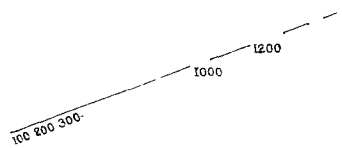
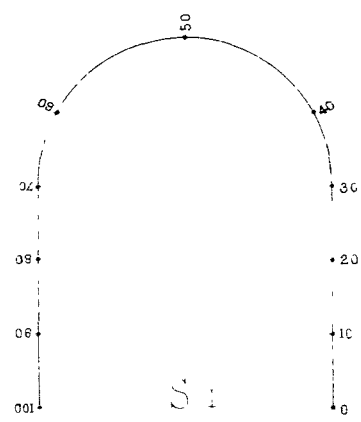
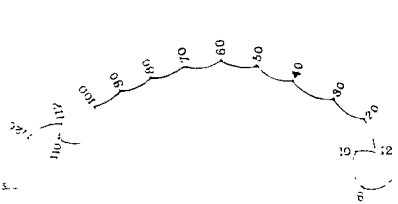
APPENDIX.

Brief Extracts from a few letters, with illustrations. (See Plate VII.)
(The letter accompanying each illustration is the initial of the Correspondent.)

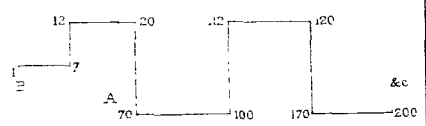
GEORGE BIDDER, Q.C.—One of the most curious peculiarities in my own case is the arrangement of the arithmetical numerals. I have sketched this to the best of my ability; every number (at least within the first thousand, and afterwards thousands take the place of units) is always thought of by me in its own definite place in the series, where it has, if I may say so, a home and an individuality. I should, however, qualify this by saying that when I am multiplying together two large numbers, my mind is engrossed in the operation, and the idea of locality in the series for the moment sinks out of prominence. You will observe that the first part of the diagram roughly follows the arrangement of figures on a clock-face, and I am inclined to think that may have been in part the unconscious source of it, but I have always been utterly at a loss to account for the abrupt change at 10 and again at 12.

Colonel YULE, C.B.—I am not sure that the angle at 20 is a right angle, nor the line from 20 to 100 straight. Neither do I (or *did* I is perhaps more correct) see them in type, or black on white ground. I used to see them in gradations of colour, but I cannot fix these now with truth. I can only remember that 30 and up to 40 were of a subdued sunny colour; a division of the shade took place at 12.

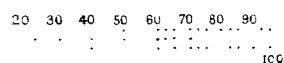
The Rev. G. HENSLOW.—I have always associated my numbers from childhood upwards as in the accompanying arrangement, but am quite at a loss to know how it arose. My alphabet corresponds with it.



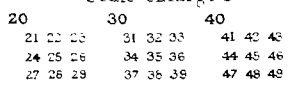
S 2



Scale

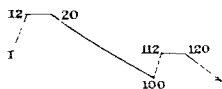


Scale enlarged

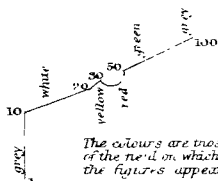


R

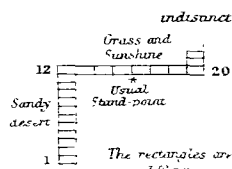
W S



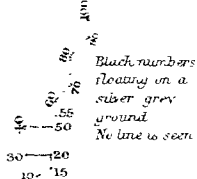
Every unit has its own tint
2 white, 4 orange, 7 blue



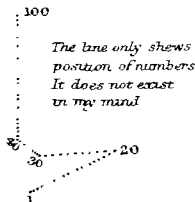
The colours are those
of the field on which
the figures appear



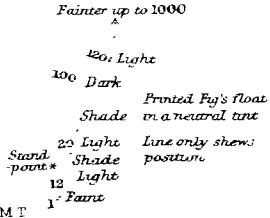
The rectangles are
very different in
their imitative



Black numbers
floating on a
silver grey
ground
No line to seen

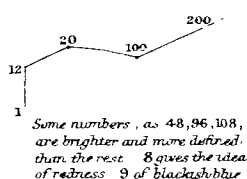
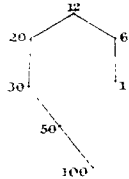


The line only shows
position of numbers
It does not exist
in my mind

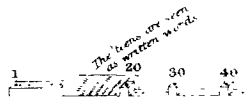
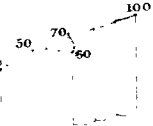
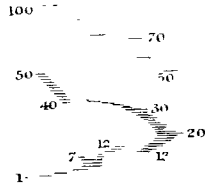
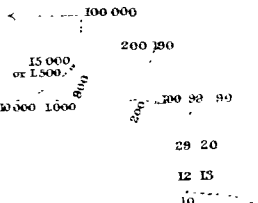
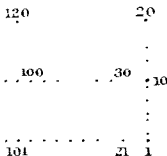
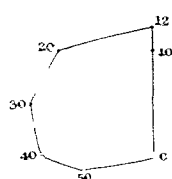


Fainter up to 1000

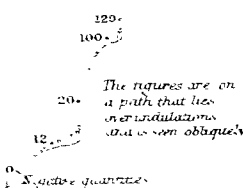
120: Light
100: Dark
Shade
Printed Fig's float
in a neutral tint
Line only shows
position



Some numbers, as 48, 96, 108,
are brighter and more defined
than the rest. 8 gives the idea
of redness, 9 of blackishblue



The frame is merely to
obtain the perspective

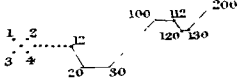
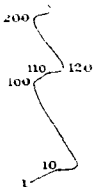
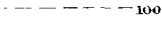


The figures are on
a path that lies
on a plane oblique

The base and verticall
are merely to explain
the perspective

The frame is merely to
obtain the perspective

The figures are on
a path that lies
on a plane oblique



ARTHUR SCHUSTER, F.R.S.—The first figure shows the appearance the diagram 0-100 would have if looked at perpendicularly. It recedes from the eye with a slight upward slope of about 1 in 12. I make extensive use of this diagram; it seems to me to act as a shelf on which I can put any number and take it out again when required. There is, however, a good deal of elasticity in this (as well as in the second figure), when I am specially occupied with one part of it, say between 70 and 80, as in thinking over what has happened in the last 10 years, that part would seem to become larger and encroach on the territory of its neighbours. On certain occasions also, the diagram would become distorted so as to join the 100 to the 0.

This is not the only figure on which I visualise numbers; the hundreds seem to me to be arranged as in the second figure, in a line sloping upwards. Between 1200 and 1500 the diagram becomes confused; above 1500 I cannot visualise numbers. I have almost daily to deal with such up to four or five figures, but they are only figures to me; I cannot represent them in a diagram.

JOHN ROGET.—The first twelve are clearly derived from the spots on dominoes. After 100 there is nothing clear but 108 (*i.e.* 9×12), and then I begin with the units and tens only as above.

B. WOODD SMITH.—In my case the numerals follow the route shown in the accompanying figure. Above 200 it becomes vague and is soon lost, except that 999 is always in a corner like 99. The lines bear no reasonable proportion to the numbers they contain, my own position in regard to them is generally at A, nearly opposite my own age, 50, and has shifted as I have grown older, but it sometimes varies between A and B. When at B I always stand with 1-7 to my left, but when at A I can face either towards 7-12 or towards 12-20, or 20-70, but never (I think) with my back to 12-20.

DISCUSSION.

GEORGE BIDDER, Esq., observed that he had possessed the faculty of mental visualisation referred to in the paper so long as he could remember. He imagined the mental pictures to be survivals of some early association of childhood, which however, in most cases, it is impossible to trace. In the mental picture or diagram that numerals appear to him to assume, the first twelve numbers are placed as if on a clock face, and probably the idea was originally derived from that source. In his diagram there was an angle at 10, and again at 12. He could only account for this by supposing it to be the result of a struggle between the decimal and duodecimal systems of notation. He explained also that not only numbers, but almost all subjects of thought and memory, present themselves to his mind in a visualised form:—For example, the months of the year are arranged in a circle. The days of the week in a line from right to left. The dates and events of history have also a

definite local arrangement. As regards the latter, he believed that he could identify part of it with the arrangement in a certain historical puzzle-map, which he once, as a child, possessed.

He pointed out in connection with the subject, the curious value of *memoria technica* in assisting the memory, which usually consists of the arbitrary association of the fact to be remembered, with some totally incongruous, and perhaps ludicrous topic, and that apparently the very incongruity is an aid to memory; he also explained that the visualised pictures were not in his case to be confounded with impressions real or false of the organs of external sense, and did not seem to rank with them at all.

Dr. HACK TUKE: With reference to a question just put by Major-General Lane Fox, as to "Whether the cause of the difference between different people in the power to visualise mental impressions depends upon the perfection of the organs of sight?" I see no reason to suppose such to be the case. I have no doubt the optic nerve is as well developed and the sight as good in those who are destitute of this power as in the 1 in 30 who possess it. Dr. Ferrier and others believe they have made out the visual centre in the grey matter of the cerebral convolutions; and it is probably here that this remarkable power resides. It is not in the peripheral expansion of the optic nerve. If we could examine—I hope it may be long hence—the grey matter of the visual centre of Mr. Bidder and others who have given us their experience to-night, we ought to find under the microscope a greater perfection of structure than in that of ordinary people. If our knowledge were sufficiently advanced, we ought to discover cells exquisitely adapted to their purpose; cells possessing a receptive and retentive power in a superlative degree. This visualising of forms might be called a faculty of physiological hallucination, as distinguished from what I am more familiar with—pathological hallucination. I have paid some attention to this among the insane, and have observed marked differences among them on careful inquiry into their sensations, although at first sight they seemed identical. Thus, with auditory hallucinations, I find that when a man hears an imaginary voice he sometimes hears it as clearly as he hears my own; while in other cases it is only heard internally. It is an inward voice. Corresponding conditions, I suspect, occur with those who visualise figures. In some, there is a distinct objective form; in others, the internal representation, however vivid, does not reach the point of objectivity. It would take too long to go into the physiological causes of these differences. There is no doubt that the researches of Mr. Galton in regard to these remarkable mental representations, which are consistent with perfect health, present great interest to those who study the hallucinations which result from disease. In both instances they are alike purely subjective in their nature.

Mr. SCHUSTER: The diagram of numerals which I see, has roughly the shape of a horse-shoe, lying on a slightly inclined plane, with the open end towards me. It always first comes into

view, in front of me, a little to the left, so that the right-hand branch of the horseshoe, at the bottom of which I place 0, is in front of my left eye. The numbers then succeed each other, going upwards and to the left: 50 is placed at the highest point. When I move my eyes without moving my head, the diagram remains fixed in space, and does not follow the movement of my eye. When I move the head, the diagram unconsciously follows the movement, but I can, by an effort, have it fixed in space as before. I can also shift it from one part of the field of view to the other, and even turn it upside down. I use the diagram as a resting-place for the memory, placing a number on it, and finding it again when wanted. A remarkable property of the diagram is a sort of elasticity which enables me to join the two open ends of the horse-shoe together when I want to connect 100 with 0. The same elasticity causes me to see that part of the diagram on which I fix my attention larger than the rest.

I also have a diagram on which I place the months of the year. The diagram is an oval curve. The months follow each other in the direction of motion of the hands of a watch. The summer months take up a much larger space than the winter months.

I see the days of the week arranged in a straight line from right to left.

Although both the numerals and the days of the week succeed each other from right to left, I am not left-handed.

MR. A. TYLOR: Mr. Bidder in his remarkable and most valuable account of the workings of his own mind, and of the hereditary power which he possesses of visualising, has stated: First, that the face of the clock itself (but with the figures XI and XII deficient) from which as a child he had learnt to tell the time, recurs to his mind when he visualises. Second, that the picture of a certain number of the kings of England following William the Conqueror, appears still in his mind in the same row that he first saw them in the child's pictorial history book from which he learnt their names, dates, and order. From the statement made by Mr. Galton on the authority of most of the visualists, the impressions of this kind made in childhood are the most permanent, brightest, and clearest. The events happening since childhood are more difficult to visualise than the earlier periods of history.

This statement refers us to the importance of object lessons for children, the Kindergarten system, and explains why children should be taught by objects. A block, with three dimensions, faced with a picture of an object used to illustrate a letter or word, seem to enable any child to visualise and make the first great abstract step in education.

I may mention my own experience on a subject not touched on by Mr. Galton, viz.: the manner of learning to distinguish the right hand from the left.

I found that difficult, and when a young child invented for myself a plan of overcoming that difficulty: I pictured, or as it will now be called (after the valuable discovery of Mr. Galton),

visualised myself always in the same position in the same room riding on a rocking-horse, with a whip in my right hand; as I knew that the hand with the whip must be always between the horse and the wall, I could determine which was my right hand in whatever position I actually was, by placing myself visually in the proper position on the horse. No doubt most children do something of this kind in learning lessons, music, or ciphering.

Had I known how to interpret what had happened to myself and to Mr. Galton's other observers—when I read before the Institute my paper on the “Object-Origin of Pre-historic Thoughts and Ideas,”* I should have strengthened my argument on Thought. Mr. Galton's researches extend the principle I thus advocated very much. I believe now that the only thoughts that young children can attain to have a distinct object-origin, and on this point children resemble the whole animal world. Not only has Mr. Galton's inquiry a local value, but his investigation will probably affect the theory of the working of the human mind, and have an important application on other questions of biology.

MR. ROGET, on being called upon, stated that the form which the numbers from 1 to 100 instinctively assumed in his imagination, did not seem to exhibit any remarkable peculiarities as compared with those of other persons who saw such forms. It was, however, so deeply engraven in his mind, that a strong effort of the will was required to substitute for it any artificial arrangement. This he had found to be the case in the endeavour to fix dates in his memory. He had, in childhood, been trained by his father (the late Dr. Roget) to the use of a well-known system of *memoria technica* advocated by Feinaigle, in which each year has its special place on the walls of a particular room, and the rooms of a house represent successive centuries. This plan his father had made great use of, and it had always served the speaker well for the chronology of earlier ages; but for that in which we live, particularly for events during his own life, he had, in spite of various attempts, never succeeded in fairly locating the dates in the room assigned to them. They *would* go to what seemed to be their natural homes in the arrangement above referred to, which had come to him from some other, probably prior, but unknown source. The numbers from 1 to 12, taken separately, usually appeared to him in symmetrical forms, chiefly learnt, he had little doubt, from the spots on dominoes.

MR. RICHARD B. MARTIN: I should like to ask Mr. Galton if he has observed the singular power which is the subject of his paper to exist in any particular class of persons, or to be associated with any special pursuits, artistic, mathematical, or otherwise.

The Rev. G. HENSLOW described his own scheme of visualised numerals, which, like several others, had an angular bend at 10, and another at 12. The figures 1–6 being horizontal, figure 6 was in the usual point of sight, 7 to 10 being vertically arranged. The

* “Journal of the Anthropological Institute,” vol. vi, p. 125.

whole range from 1 to 100 (101 recommencing at 1) was in sight at once, and any figure could be observed in its normal place; but if the head was turned, the whole scheme moved accordingly. By an effort of the will, if the eyes were *alone* turned and not the head, the scheme could be shifted also, so that the figure 6 would still retain its position in the line of sight.

His mental alphabet was described as partially coloured; several of the letters being the initial letters of colours, partake of the same hues. Thus, B, G, R, P, are blue, green, red, purple, respectively. I is black, being the initial letter of Ink, while C and O are white, apparently due to the white space included within the circle of black; that others are coloured, such as A being yellow, and several grey. He could not account for these facts.

Mr. Henslow also described his experience of *Visual Objects*. On shutting the eyes and waiting for a minute or so, some object, real or nondescript, is sure to appear. Something in its form appears to be suggestive of some other object, into which it spontaneously turns, the latter resolving itself into a third, and so on till the series vanishes. The visual objects are thus purely automatic creations of the brain. Sometimes an object will appear which had been previously seen, but entirely forgotten, showing that unconscious or automatic memory was at work. The objects often seen are elaborately cut glass bowls, etc., highly ornamental; embossed, chased or frosted or filigreed gold and silver ornaments, flower-stands, etc., of exquisite beauty; as well as common objects, fruit, flowers, jugs, sofas, etc. Brilliant and elaborate patterns of textile fabrics are not unfrequent. Choice bits of scenery, such as a narrow gorge, covered with ferns and mosses, with cascades, etc., or again, well-remembered scenes of childhood, will spontaneously appear.

If an attempt be made to foist some object into the dioramic series, a great effort of the will is required. The first attempt may either fail entirely or some nondescript hybrid structure, part automatic and part volitional, will appear. By a continued and determined effort to see the object thought of, the will or volitional effort may overcome the automatic action of the brain, so that the object determined upon will at last appear distinct and sharply defined.

Every object is generally very distinct, though if of some length, the whole of it cannot always be seen at once, thus the stock of a gun was only visible, not the barrel. They are at focal distance, excepting scenery, which appears as in nature. The objects are of small size, 1 to 2 or 3 inches in diameter or length.

Several water-colour illustrations of visual objects were exhibited by Mr. Henslow.

Colonel YULE, C.B. : I am afraid my experiences in this way are less striking and vivid than those described by the gentlemen who have spoken. The diagram representing the form in which I see the series of numbers is on the wall, and will be seen to be of a very simple kind compared with theirs. With me, too, the impressions have become sensibly weaker of late years, and in describing them

it is not always quite easy to say how far I am speaking from surviving impressions, and how far from memories of the past. I must say, too, that I have found that under the effort to fix and describe these impressions in writing for Mr. Galton, they have become, as it were, thinner, and hard to catch; and in this experience I do not stand alone.

Though I could respond to much that was said of their own impressions by Mr. Bidder and Mr. Henslow, there is one point in which their experiences raise in me strong dissent. They actually describe not only the procession of numbers as seen by them, but that of the days of the week and the months of the year as advancing from *right to left*! Now, so strong with me is the opposite impression that their description seems to me quite anomalous, and in fact if I said all I felt I should say—"Why, everybody *knows* that they go the other way."

I may mention that the procession of numbers as I see them, rising vertically from 1 to 20, and from 20 going off to the right in a tolerably straight line up to 100, applies strictly also to my retrospect of the history of the centuries. Every event in the first 20 years of a century (*e.g.*, the Union with Scotland, the Rebellion of 1715 in the last century; or the Regency, the battle of Waterloo, etc., in the present century) I see as in the vertical part of the series, every event in the remaining decades of the century falls into the horizontal procession.

Colonel Yule then spoke of the form and different colours of the days of the week as they appeared to him; and in conclusion said that in being called up to speak on this subject, he could not but feel a good deal like M. Jourdain, who was so astonished at learning that he had been speaking prose for 40 years without knowing it. So he (the speaker) had been *visualising* for a good deal more than 40 years, and but for their friend Mr. Galton he should never have become aware of the fact.

MARCH 23RD, 1880.

E. BURNETT TYLOR, Esq., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following list of presents were announced, and thanks were ordered to be returned to the respective donors:—

FOR THE LIBRARY.

From MAGYAR TUDOMÁNYOS AKADEMIA A BUDA-PEST.—*Almanach*, 1879-80; *Értesítő* (Akadémiai) 1878, 1-7; *Értesítő* (Archæo-

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Niobrrese Picture Writing

logiai) 1878, XII; Évkönyvek (Annales), XVI, 2-5; Értekezések a társad. tudományok köréből. V. 1-8; Értekezések a történelmi tudományok köréből, VII, 5-10, VIII, 1-9; Értekezések a mathem. tudományok köréből, VI, 3-9, VII, 1, 2, 4, 5; Értekezések a természet-tudományok köréből, VIII, 3-15, IX, 1-19; Közlemények (Math. és Term.) XIV, XV; Monumenta Hungariæ Historica. I. osztály. Diplomataria, XVI; Történelmi Tár. XXV; Archivum Rákóczián. I. osztály. VI, VII; Liter. Berichte aus Ungarn. 1878, 1-4, 1879, 1-4; Monum. Archæol. III, 2, IV, 1.

From the EDITOR.—“Nature,” Nos. 541, 542.

From the EDITOR.—Revue Internationale des Sciences, No. 3, 1880.

From the EDITOR.—Revue Scientifique, No. 38.

From the EDITOR.—Correspondenz-Blatt, No. 3, 1880.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1425, 1426.

From the SOCIETY.—Proceedings of the Society of Antiquaries of Scotland. Vol. XII, pt. 2. Vol. I, new series.

From the SOCIETY.—Mittheilungen der Anthropol., Gesell. in Wien. Band. IX, Nos. 9, 10.

From the GOVERNMENT.—Statistics of the Colony of New Zealand, 1878.

From the AUTHOR.—Archæological Notes on Ancient Sculpturings on Rocks in Kumaon, India; Prehistoric Remains in Central India; Rough Notes on the Snake Symbol in India, in connection with the Worship of Siva; Description of some Stone Carvings collected in a Tour through the Doab, from Cawnpore to Mainpuri. By J. H. Rivett-Carnac, Esq., C.S., C.I.E.

From the AUTHOR.—Introduction to the Study of Sign Language. By Garrick Mallery, Esq.

From the AUTHOR.—“Turtle-back” Celts in the District of Columbia.

Report on a Chaco Cranium. By W. J. Hoffman, M.D.

The following paper was read:—

On NICOBARESE IDEOGRAPHS. By V. BALL, M.A., F.G.S.

Mr. GALTON'S abstract of M. von M. Maclay's Notes* on the Papuans of Maclay Coast, New Guinea, has recalled to my memory an intention formed long ago of bringing before the notice of the members of the Anthropological Institute, an account of certain *ideographs* or picture writings which are commonly to be met with in the houses of the inhabitants of the

* Published in “Nature.” vol. XXI. p. 227.

Nicobar Islands. What I have to say on the subject is not precisely new, since a paper by me, describing and figuring the example, of which I herewith forward a photograph, was published in the Bombay "Indian Antiquary," for 1875. However, since the facts have never been laid before a critical audience, I venture to hope that this communication may not prove unacceptable to the members of the Institute.

As the Andamanese may be said to have not progressed in civilisation beyond that stage which was represented by the people of the early stone periods of Europe, so the Nicobarese, who are much less savage and degraded than their neighbours of the Andamans, may justly be compared with the inhabitants of Europe in the "Bronze period,"* their villages erected on posts below high-water mark, alone serving to suggest a comparison with the lake-dwellings of Switzerland and other countries.

The example of Nicobarese picture writing, which I shall now describe,† was obtained by me in the year 1873, on the island of Kondul, where I found it hanging in the house of a man who was said to have died a short time previously. Before removing it I obtained the consent of some of the villagers, who seemed amused at my wishing for it. The offer of sundry bottles of rum, some cigars, and rupees, enabled me to obtain a goodly number of images, weapons, utensils, etc., but I do not purpose to allude to these more than thus incidentally at present.

While fully recognising the possibility of this painted screen not being intended to be more than an ornamental object, as the wooden images of men which are commonly to be seen in Nicobarese houses are believed to be, there are several features about it which lead me to the conclusion that it is really a record of some event.

The material of which it is made is, I believe, either the *glume* of a bamboo, or the *spathe* of a palm which has been flattened out and framed with split bamboos.

It is about 3 feet long, by 18 inches broad. The objects are painted with vermilion, their outlines being surrounded with punctures, which allow the light to pass through. Suspended from the frame are some young cocoanuts and fragments of dried hogflesh.

As in all such Nicobarese paintings, which I have either seen or heard of, figures of the sun, moon, and stars occupy prominent positions. Now the sun and moon are stated by those who have known the Nicobarese best to be especial objects of adoration,

* I obtained a Nicobarese spear-head when in the island which was made of copper; but ordinarily iron obtained by barter, or from wrecks is used in the manufacture of spears.

† The original is deposited in the Museum of Science and Art, Dublin.

and therefore these paintings may have some religious significance, but it may be that they are regarded as the orthodox heading of even purely civil records.

At first it occurred to me that this was merely an inventory of the property of the deceased, but as some of the objects are certainly not such as we should expect to find in an enumeration of property, *e.g.*, the lizard, while the figures of men appear to portray particular emotions, it seems probable that the objects represented have a more or less conventional meaning, and that we have here a document of as *bond fide* and translatable a character as an Egyptian hieroglyphic inscription.

My own efforts to discover an interpretation from the natives on the spot were not crowned with success, and I have now to regret that I did not persevere, as some of the more intelligent and intelligible inhabitants near the settlement at Kamorta would probably have been able to explain the meaning of the signs.

Mr. De Röpstorff, Extra Assistant Superintendent of the Andamans and Nicobars, to whom I applied for such information as he might be able to collect upon the subject, assured me by letter in 1873, that the screens had a religious significance, and were used to exorcise spirits, but he did not seem to regard them as capable of being interpreted. However, I am not quite satisfied that this view is correct, and I therefore hope that some one, having an opportunity of doing so, may give special attention to the point.

The following is a list of the objects depicted, besides animals; many of the common utensils in use in a Nicobarese household are included:—

1. The sun and stars; 2. The moon and stars; 3. Swallows or (?) flying fish; 4. Impression of the forepart of a human foot; 5. A lizard (*Hydrosaurus* ?); 6. Four men in various attitudes; 7. Two *dás* for cutting jungle; 8. Two earthen cooking vessels; 9. Two birds; 10. An axe; 11. Two spears; 12. A ladder (?); 13. Dish for food; 14. Coconut water vessels; 15. Palm-tree; 16. A canoe; 17. Three pigs; 18. Shed; 19. Domestic fowl; 20. Seaman's chest; 21. Dog; 22. Fish of different kinds; 23. Turtle.

*Authorities on the Nicobar Islands not included in, and subsequent to Mr. Distant's List.** By V. BALL, M.A., F.G.S.

Travels of two Mahomedans through India and China. Translated from the Arabic, by the Abbé Renaudot. Re-translated from French into English, "Harris's Voyages and Travels," Vol. I, p. 523.

First Voyage written by Soliman, A.H. 237, A.D. 851. Second, by Abu Zaid-l-Hussan of Siraf, A.H. 303 = A.D. 916.

JAMIN-T-TAWARIK, by Rashidu-d-Din, A.H. 710 = A.D. 1310. Lakerméran-Nicobars.

Vide "History of India," by Sir Henry Elliot, Vol. I, p. 71, and remarks upon the above by Colonel H. Yule, J.R.A.S., Vol. IV, N.S., part 2, p. 352.

NICOLO CONTI, A.D. 1420-1430.

Vide "India in the 15th Century," Introduction, Hakluyt Society. The remarks on the voyages of Sindbad the Sailor are of particular interest. It is possible that the Island of Nacous, visited by Sindbad, was one of the Nicobars.

FERNANDEZ. An account of the Empire of China, Historical, Political, Moral, and Religious, written in Spanish, by the R. F. F. Dominic, Fernandez Navaretti, 1667. Translated in "A Collection of Voyages and Travels, etc.," Vol. I, Book VI, chap. 19, p. 273. London, 1752.

PÈRE FAURE, S.J. Letter to Père de la Boësse, S.J., dated 17th January, 1711. From the "Lettres Edifiantes et Cirseuses," Toulouse, 1810.

PÈRE TULLANDIER, S.J. to Père Willard, S.J., dated 20th February, 1711, t.c., p. 58.

KCEPING. Voyage of, Stockholm, 1743.

BOLT'S Recueil des pièces authentiques relatives aux affaires de la ci-devant Société Impériale Asiatique de Trieste Génie à Anvers. Bruxelles 1787, p. 78.

TOPPING. "Journal of a Voyage in the Bay of Bengal" (visited Nicobars, October 1790.) Selections from records of the Madras Government, No. XIX, 1855, pp. 31, 35.

COLEBROOKE, Lt. R. H. On the Islands Nancoury and Comarty. "Asiatic Researches," Vol. IV, 1795, p. 129.

HAMILTON. East India Gazetteer, London, 1805.

HORSBURG. East Indian Directory, Vol. II, 1836. Reprinted in "Records of the Government of India," No. LXXVII, 1870, p. 1.

* "Journal of the Anthropological Institute," vol. vi, No. iii, p. 209.

Selections from the Calcutta Gazetteer, Calcutta, Vol. V, 1823, p. 94.

BUSCH. *Journal* kept on board the schooner "L'Espiegel" on a cruise amongst the Nicobar Islands, in 1845. Reprinted in the "Records of the Government of India," No. LXXVII, 1870, p. 9.

MCCLELLANDT, Dr. Analytical report on specimens of coal from the Nicobars, 31st May, 1845. "Records of the Government of India," Vol. LXXVII, 1870, p. 28.

BARBE, Rev. P. Notice of the Nicobar Islands, "Journal of the Asiatic Society of Bengal," Vol. XV, 1846, p. 344.

"Sketches at the Nicobars, "Journal of the Indian Archipelago," Vol. III, 1849, p. 261.

CHOPARD, Rev. J. M., Missionary Apostolic. "A few particulars respecting the Nicobar Islands," dated 2nd June, 1844. "Journal of the Indian Archipelago," Vol. III, 1849, p. 271. Reprinted in the "Records of the Government of India," No. LXXVII, 1870, p. 68.

SCHERZER, Dr. KARL. "Reise der Novara um die Erde," 1861, Vol. II, p. 79. "Statistics and Commerce," Vol. I, p. 291; "Medical Report," Vol. I, Sec. VIII.

MAN, Col., AND KING, Dr. Report on the Nicobar Islands, April 1869. Port Blair, Pamph. 1869.

BALL, V. "The Nicobar Islands," "Calcutta Review," No. CII, 1870, p. 246.

BALL, V. "On the Language of the Nicobaarins." "Records of the Government of India," No. LXXVII, 1870, p. 258.

BALL, V. Notes on a trip to the Nicobar Islands. "Land and Water," 1870.

Besides the above, there are several minor references which might be given, but it is perhaps undesirable to enlarge the list.

I avail myself of this opportunity of pointing out that Mr. Distant* has unfortunately been misled regarding the geological structure of the Nicobar Islands by one of the authorities whom he quotes. It is neither the case that "the Great Nicobar, Little Nicobar, and Katchall are of coral formation," nor that "the other islands are of volcanic origin."

* Car Nicobar, as stated, was the only island of the group which I visited. As regards the geology of the Great Nicobar, Little Nicobar, and Katchall, I relied on the testimony of Fr. Ad. de Roepstorff ("Geograph. Mag.," vol. ii, p. 44, 1875), as also for the volcanic origin of the other islands.

Mr. Ball has omitted from his supplement to my bibliographical list, the most important paper published since that date, viz.: "Observations on Mr. Man's Collection of Andamanese and Nicobarese Objects," by Maj.-Gen. A. Lane Fox ("Journal Anthro. Inst.," vol. vii, p. 433, 1878). There is also (*ibid.* vol. viii, p. 336, 1879) a note of my own, recording information communicated by Gen. Man, as to the people inhabiting the interior of the Great Nicobar Island. —W.L.D.

Raised coral beaches do indeed occur near the coast lines of the first mentioned, and dykes of volcanic rocks have been observed in the latter, but both are mainly composed of sedimentary rocks of tertiary age as has been pointed out by Rink Hochstetter and others.

ALFRED TYLOR, Esq., F.G.S., read a paper entitled "The Laws of Ornament in the Organic World, and on the Origin of the Human Form."

APRIL 13TH, 1880.

Major-General A. LANE FOX PITT RIVERS, F.R.S., *Vice-President,*
in the Chair.

The minutes of the last meeting were read and confirmed.

The following presents were announced, and thanks ordered to be returned to the respective donors:—

FOR THE LIBRARY.

From W. EASSIE, Esq.—Transactions of the Cremation Society of England, No. 1.

From Professor AGASSIZ.—Bulletin of the Museum of Comparative Zoology, at Harvard College, Cambridge, Mass., Vol. VI, No. 3.

From Professor A. ECKER.—Archiv für Anthropologie, Vol. XII, Part 3.

From the GEOGRAPHICAL SOCIETY OF METZ.—Zweiter Jahresbericht des Vereins für Erdkunde zu Metz pro 1879.

From the AUTHOR.—Mittheilungen aus der Anthropologischen Literatur Amerikas. By Dr. Emil Schmidt.

From the AUTHOR.—Eine Culturskizze des Marutse-Mambunda-Reiches in Süd-central-Afrika. By Dr. Emil Holub.

From the SOCIETY.—Proceedings of the Royal Society, No. 201.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1427-1429.

From the SOCIETY.—Proceedings of the Society of Antiquaries, Vol. VIII, No. 2.

From the SOCIETY.—Bulletin de la Société de Borda a Dax, 1880, No. 1.

From the SOCIETY.—Proceedings of the Royal Geographical Society, Vol. II, No. 4,

From the SOCIETY.—Transactions of the Imperial Society of Naturalists, Moscow, Vol. XXV, Part 3.

From the SOCIETY.—Proceedings of the American Philosophical Society, Nos. 103, 104.

From the ACADEMY.—*Nova Acta Academiae Cæsareæ Leopoldino-Carolinæ Germanicæ Naturæ Curiosorum*, T. XL.

From the ASSOCIATION.—Annual Report of the Geologists' Association for 1879.

From the ASSOCIATION.—Proceedings of the American Association for the Advancement of Science, 27th Meeting.

From the EDITOR.—“Nature,” Nos. 543-545.

From the EDITOR.—“Athenæum,” Part 627.

From the EDITOR.—*Revue Scientifique* Nos. 39-41.

From the EDITOR.—*Matériaux pour l'histoire de l'Homme*, T. XI, liv. 1, 2.

The following paper was read :—

NOTES *on the* POLYNESIAN RACE.

By C. STANILAND WAKE, M.A.I.

IN a valuable work recently published* some remarks are made with reference to the Polynesian race, which, although not inconsistent with the statements of recognised authorities, appear to me to be erroneous and, owing to their importance, to require correction. The writer of the work in question, after affirming that the whole of the Polynesian Islands are inhabited by one race, which differs very little in the several islands, gives a general description of its physical characters, and of the native arts and manufactures. Among other things it is stated that the *Mahoris*, the name there given to the brown Polynesians, “have little beard generally, though sometimes it grows pretty freely,” and it is asserted that they have no bow and arrows (p. 494). These two general statements are, if true, very important, seeing that they tend to support the opinion that the Polynesian and Papuan peoples belong to quite distinct races. The bearded Mangaian of the Hervey Archipelago are distinguished from the Mahoris, so called, as the extreme eastern outliers of the Melanesian or Papuan race (p. 567), and elsewhere the lighter coloured natives of Eastern New Guinea are said to possess many features “which are characteristically Polynesian,” among them being “absence of the bow and arrow” (p. 456). Mr. Wallace, the editor of the work from which these statements are taken, wrote, not long ago, in the

* “Stanford’s *Compendium of Geography and Travel*,” (“Australasia.”) Edited and extended by Alfred R. Wallace, F.R.G.S. 1879.

"Contemporary Review,"* that the Papuans of New Guinea contrast strongly with the Malays and Polynesians, being tolerably well bearded, and differ from them in having the bow and arrow, as an indigenous weapon, stating indeed that "the use of the bow and arrow by the Papuans is an important ethnological feature, distinguishing them from all the peoples by whom they are immediately surrounded, and connecting them, as do their physiological peculiarities, with an ancient wide-spread negroid type." I propose therefore to show, *first*, that the Polynesian Islanders must be described rather as a bearded than a non-bearded race, and, *secondly*, that, as a rule, they are well acquainted with the use of the bow and arrow.

As to the first point, it must be admitted that the idea of the Polynesian Islanders being an almost beardless race is not a rare one. Mr. Hale, of the United States' Exploring Expedition, in his admirable work on ethnography and philology, affirms that with them the beard is scanty and does not usually make its appearance till middle age (p. 9). Again, a recent German writer, Herr Peschel, speaks of the Polynesian and Asiatic Malays as one race, and as having "almost complete absence of beard and hair on the body" as a common character.† On the other hand, however, Prof. Lawrence long since made the remark that "although the South Sea Islanders come under the dark-coloured division of the human race, they are not at all deficient in beard." He adds that "the descriptions and figures of Cook concur in assigning to them in many cases a copious growth."‡ The general truth of Lawrence's conclusion can be established by reference to the testimony of various travellers as to the inhabitants of the several island groups of the Pacific. Thus Dr. Pickering makes the observation that the beard is not unusual among the Polynesians, although it is not strong until late in life.§ This traveller remarks, indeed, that in the Low Archipelago the Eastern and Western Paumotuans remove the beard, but he adds that it is universally worn by the natives of Disappointment Island and Penrhyn Island.|| This would seem to be true also of the Gambier Islanders, who are said by Capt. Beechy to wear moustaches and beards, but no whiskers. One man had a beard which reached to the pit of his stomach.¶ The natives of Easter Island who, like the Penrhyn Islanders, are supposed by Mr. Gill to have been derived from the Hervey

* February, 1879.

† "The Races of Man." (English edition) p. 347.

‡ "Lectures," p. 206.

§ "Races of Man," (Bohn) p. 44.

|| *Ibid.* p. 48 *seq.*

¶ See "Prichard's "Physical Researches," vol. v. p. 142.

Islands,* cut the beard short for cleanliness.† The Hervey Islanders themselves would appear to be well bearded,‡ although this is ascribed by Mr. Wallace to the presence of a Melanesian element.§ That people were derived from the Samoan group, from which the Society Islanders are said to have migrated at a still earlier date. Now, Mr. Forster long since noted that at Tahiti the chiefs and others often had strong beards.|| a statement which is confirmed by Capt. Cook, who says that the beard is there grown long.¶ A later observer, the Rev. William Ellis, in speaking of the Tahitians and the natives of the neighbouring islands, remarks that “sometimes the men plucked the beard out by the roots, shaved it off with a shark’s tooth, or removed it with the edges of two shells, acting like the blades of a pair of scissors, but cutting against each other; whilst others allowed the beard to grow, sometimes twisting and braiding it together.” He states, however, that these fashions have all disappeared, and that the beard is generally at least shaved once a week, and by the chiefs more frequently.** If we approach nearer to the Samoan group, from which all the Eastern Pacific Islanders have sprung, we find that the natives of the Niue or Savage Island are able to grow the beard to a great length.†† It is true that, according to a correspondent of Dr. J. Barnard Davis, the inhabitants of the Ellice group of islands—who claim to have sprung from Samoa—“have, as a rule, a dozen straggling hairs for a beard.‡‡ It appears, however, from the same authority that on one island, Nunemaya, “the men have splendid beards,” and Admiral Wilkes states expressly that the inhabitants of Fanafute, the largest island of the Ellice group, are well provided with beards, resembling in that respect the Fijians. He adds that the people generally are similar in appearance to the Hawaiians, although speaking a dialect resembling the Samoan. §§ The scanty beard of some of the Ellice Islanders may perhaps be due to the fact that an Asiatic element has been introduced from the Kingsmill Islands. Admiral Wilkes mentions that a loathsome skin disease to which the former are subject is equally prevalent in the latter,|| and Mr. Gill states that the natives of the Nui Island, in the Ellice

* “Life in the Southern Isles,” p. 26

† G. Forster’s “Voyage Round the World,” vol. i, p. 558.

‡ “Cook’s Third Voyage,” vol. i, p. 173.

§ See “Australasia,” p. 507.

|| *Op. cit.* vol. ii, p. 111.

¶ “Second Voyage Round the World” vol. ii n. 147

** “Polynesian Researches,” 2nd edition, i, 79, 133.

†† Wood’s “Natural History of Man,” vol. ii, p. 395.

‡‡ “Anthropological Review,” vol. viii, p. 191.

§§ “United States’ Exploring Expedition,” vol. v, p. 38 *seq.*

|| *Ibid.* v, p. 45.

Archipelago, trace their origin to the Kingsmill group, which he supposes to have been peopled from Japan.* The last named writer affirms that the Maoris of New Zealand are in part descended from the Hervey Islanders, whom they call elder brothers,† and Capt. Cook and his companions speak of the black frizzled beards which they saw among the New Zealanders.‡ The Rev. Mr. Taylor says that the Maori rivals the European in the luxuriance of his beard,§ and Mr. J. G. Wood remarks that the Maoris have naturally a full beard, but that they remove every vestige of hair on the face in order to show the tattoo markings on it.¶ This statement agrees with Dr. J. R. Forster's observation that, in both New Zealand and the Marquesas, those who are much punctured on their faces have very little or no beard at all.¶ Captain Cook states, however, that the Marquesans, who are said to be the finest of the South Sea Islanders, have generally long beards,** and he describes the treatment of these appendages in much the same terms as are used by Mr. Ellis in relation to the beards of the Tahitians. A recent writer mentions the fact that long white human beards are highly prized by the Marquesans as decorations, and are cultivated for the purpose of being thus used.†† Pritchard makes the observation as to the natives of the Sandwich Islands, that they may almost be considered as the same nation as the Marquesans,‡‡ and they would certainly seem to agree in the possession of the beard. Capt. King remarks that the inhabitants of the Sandwich Islands "differ from those of the Friendly Isles, in suffering, almost universally, their beards to grow."§§

We should be quite justified in assuming from the foregoing facts that the Polynesian Islanders are a bearded race, but strangely enough we find that the natives of the Navigator or Samoan Islands, from which most of the other islands of the East Pacific appear to have been peopled, are usually described as being but scantily bearded. Dr. Darwin, indeed, explains the beardless character of the inhabitants of the Tongan and Samoan Archipelagoes as compared with the neighbouring Fijians on the ground of their belonging to different races.|||| He does not, however, refer to any authority on that point, and the important

* *Op. cit.* p. 25.

† *Op. cit.* p. 29.

‡ Forster, *op. cit.* i, 171.

§ "New Zealand and its Inhabitants," 2nd edition, p. 56.

¶ *Op. cit.* ii, 106.

¶ "Observations made during a Voyage Round the World," p. 271.

** "Second Voyage," vol. ii, p. 309.

†† Wood, *op. cit.* ii, 386.

‡‡ "Natural History," p. 336.

§§ "Voyage to the Pacific," iii, 134.

|||| "Descent of Man," ii, 322.

position occupied by those peoples in relation to the other members of the same race renders it necessary for us to examine into the truth of his opinion. Mr. William D. Pritchard says of the Tongan and Samoan that "he is almost beardless and abhors a hairy chin."* This, is however, by way of antithesis to the remark made in relation to the Fijian, that his beard is equally profuse as his hair and "is his greatest pride,"† so that the statement must not be taken as literally true. On the other hand, not only does Mr. G. Forster remark that the Tongans cut the beard short for the sake of cleanliness,‡ but Dr. Pickering says distinctly with reference to the Tongans that although they are usually smooth chinned in their native country, many of them in Fiji had "managed to foster considerable beards in imitation of the fashion of the new country."§

Mr. Hale was struck with the fact that the natives of Vaitupu, or the Depeyster Islands, had all a greater luxuriance of beard than had been seen elsewhere, except at the Feejee Islands. He says further "it is difficult to understand why these natives should be so well furnished with beard beyond what we have seen in any other tribe of the Polynesian race. Even the natives of Fakaafu, to whom they appear to be most nearly allied, are as ill furnished in this respect as the Samoans."|| We have seen however that the Tongans, like the Depeyster Islanders, can cultivate the beard when they try, and we can hardly doubt that the Samoans, to whom the Tongans are closely allied, could do so also if they wished. In the Samoan grammar of the Rev. George Pratt, a curious note bearing on that subject has been added by the Rev. S. J. Whitmee. After referring to certain exceptions to the rule in the Polynesian dialects, that words when implying a passive or intransitive relation take *o*, but when implying an active and transitive one *a*, he says: "the beard puzzles me most. Why should it take *a*? The beard is not in favour with the Malayo-Polynesians. They are accustomed to pull out the hair on their faces. Can it be because a man would be thus (in a measure) actively concerned in possessing or not possessing a beard, that *a* is used with it?"¶ Mr. Whitmee thinks not, but his language would seem to imply that the Polynesian Islanders, and among them the Samoans, are not naturally beardless. It is true that Mr. Hale endeavours to show that the darker complexion and more abundant beard of

* "Memoirs of the Anthropological Society of London," i, 196.

† *Ibid.* p. 195.

‡ *Op. cit.* i, p. 600.

§ *Op. cit.* p. 84.

|| *Op. cit.* p. 161.

¶ "Grammar and Dictionary of the Samoan Language," 2nd edition, note page 6.

the natives of Vaitupu are due to the presence of Melanesian blood.* But this supposition is based on very insufficient grounds, which, if allowed, would require the same intermixture of races to be asserted also of the Hawaiians, whom the natives of Vaitupu appear most closely to resemble† Assuming even that some of the Polynesian peoples betray the existence of a Papuan element, it by no means follows that the beard has been derived from it, whatever may be said of other characters.

I think we shall be quite justified, in the face of the facts I have cited, in inferring that the beard has been derived by the Polynesian peoples from the same source as their general physical organisation, and that they are not naturally deficient in hair on the face. This conclusion, that the Polynesians must be regarded as a bearded race, is confirmed by the presence among the Micronesians of bearded men who resemble in other respects the former race. Thus although the natives of the Kingsmill Islands, who are described by Wilkes as being totally different from the more southern natives, had but scanty beards, yet the inhabitants of Makin, or Pitt Island, one of the group, resemble the Polynesians rather than their more immediate neighbours, and have more beard.‡ According to native tradition, the islands would seem to have been peopled partly from the Caroline group and partly from Samoa, so that the Polynesian features are easily accounted for. Possibly, moreover, the brown Polynesian race may have existed in Micronesia before the advent of the Malay element, as a thick beard is by no means unknown among the inhabitants of Pelew§ and the Caroline Islands|| Finally, Mr. Wallace refers to the existence in the northern peninsula of Gilolo, the isle of Ceram, and in Bouru, of a tall bearded race, resembling Polynesians.¶ This is quite consistent with the view he formerly entertained, that the brown Polynesian race "can best be classified as a modification of the Papuan type,"** the Papuan being noted for his abundance of beard growth, although this view has since been considerably modified.†† Probably the truer opinion is that both Polynesians and Papuans belong to the pre-Malayan race of the Indian Archipelago, who are referred to by Mr. Keane as a taller and more muscular race than the others, with less prominent cheek bones, a lighter shade of brown, with a ruddy tinge on the cheeks, beard more

* "Ethnology and Philology," pp. 163, 168.

† *Ibid.* p. 161.

‡ See Wilkes *op. cit.* v. 83; Wood, *op. cit.* ii. 377.

§ Captain Wilson's "Pelew Islands," 2nd edition, p. 27.

|| Lutke : Prichard's "Physical Researches," v. 183.

¶ "Malayan Archipelago," ii, 449, 454.

** *Ibid.* ii, 455

†† See "Australasia," p. 261.

developed, and a hair of finer texture and more inclined to a brown colour."* The Papuans would thus be Asiatic Negroes with a Polynesian admixture, or Polynesians with a negroid element, which becomes less and less apparent the further we advance eastwards from New Guinea among the Pacific islanders.

I will now proceed to the question of the bow and arrow, and as to this I would refer first to the statement of Mr. J. G. Wood that "the weapons of the Outanatas [of New Guinea] are spears, clubs, and the usual bow and arrows which form the staple of Polynesian arms."† It may be thought, however, that this writer here confounds the Polynesians and Papuans, and certainly when we try to find in Mr. Wood's work instances of the use of the bow and arrow by distinctly Polynesian peoples, we are disappointed. We have, however, in the Rev. W. W. Gill, a personal observer, and he says expressly that bows and arrows were used in the Eastern Polynesian Islands, although for sport, not for war;‡ a fact which probably accounts for the statements of other writers that those islanders do not use the bow and arrow. The testimony of Mr. Hale agrees with that of Mr. Gill as to this implement being used for amusement, although he makes the erroneous statement that it is not included by the natives of any of the islands of Polynesia among their warlike weapons.§ The real facts of the case are well stated by the late Rev. W. Ellis, who says: "the bow and arrow were never used by the Society Islanders excepting in their amusements: hence, perhaps, their arrows, though pointed, were not barbed, and they did not shoot at a mark In the Sandwich Islands they are used also as an amusement, especially in shooting rats, but are not included in their accoutrements for battle: while in the Friendly Islands the bow was not only employed on occasions of festivity but also used in war." Mr. Ellis suggests, however, that this may have arisen from their proximity to the Fiji Islands, where it is a general weapon, and he adds that at the time he wrote, the bow and arrow had been altogether laid aside in consequence of its connection with their former idolatry. We have here evidence that the bow and arrow was used for certain purposes by peoples so far apart as the Society Islanders, which here includes the Tahitians, the Sandwich Islanders and the Friendly Islanders. In addition we know from La Perouse,

* *Ibid.* p. 622.

† *Op. cit.* ii. 225.

‡ *Op. cit.* p. 28.

§ "United States' Exploring Expedition, Ethnology and Philology," pp. 42, 45.

"Polynesian Researches," vol. i, p. 220.

¶ "Voyage Round the World" (English edition), vol. iii, p. 120.

as well as from the later United States explorers, that* the natives of the Samoan group possessed that weapon, and by other evidence that it is used by the inhabitants of Savage Island,† and among those of the Ellice Islands as a child's plaything.‡ We have already had occasion to refer to the testimony of the Rev. W. W. Gill, and doubtless he speaks with particular reference to the natives of the Hervey Islands, when he says that the bow and arrow was known to the natives of Eastern Polynesia. The early navigators saw no trace of this weapon among the Maoris of New Zealand, but that it has not always been unknown to them is evident from the fact that one dialect at least of their language, the *Waikato*,§ has words for both the bow (*kopere*) and the arrow (*pere*).

It may be asked why should so warlike a people as the New Zealanders give up the use of the bow and arrow, and almost forget the existence of such a form of weapon. The reason must be sought in the fact referred to by Mr. Gill, that it is used by the Eastern Polynesians for sport only, because "their persons were so well defended with folds of cloth that such arrows as they could get would not have pierced the skin."|| Thus in the Sandwich Islands, "bows and arrows were," says Mr. Jarvis, "rarely used, being so poorly fabricated as to be of little utility."¶ They were, therefore, valued by the Society Islanders and Sandwich Islanders only as instruments of amusement. The inefficiency of a weapon for warlike purposes would, on the introduction of a more effective instrument, soon lead to its abandonment, as we see with the New Zealanders in the case of the spear, which they have long since abandoned for other weapons more suited to the nature of their conflicts.** The use for warfare of the bow and arrow in the Friendly Islands may, as Mr. Ellis supposes, be due to intercourse with the Fijians, but that the weapon itself has not been derived by the brown from the black race, may, I think, notwithstanding Mr. Wallace's opinion to the contrary, be safely affirmed. Mr. Ellis refers to the use of that weapon by the Sandwich Islanders in the sport of rat shooting, and it is remarkable that this amusement was a great favourite also in the Friendly Islands. According to Mariner, rat shooting was a regular game with established rules, among

* "Wilkes, "United States' Exploring Expedition," vol. ii, p. 151.

† Wood, *op. cit.* ii, 395.

‡ See Peschel. "The Races of Man," p. 183.

§ For reference to this tribe see "Te Ika a Mani," by the Rev. Richard Taylor (2nd edition), p. 315. The name for bow among some of the Brazilian tribes, as given by Neuhoff, *gura para*, is not unlike the *kopere* of the Waikato.

¶ *Op. cit.* p. 28.

• "History of the Hawaiian or Sandwich Islands," p. 56.

** See Wood *op. cit.*, vol. ii, p. 155.

the Tongans, and it was reserved especially for chiefs and privileged classes.* The bow and arrow was used also by the Tongans in their amusement of *fanna kalai*, or fowl shooting, a sport which was practised solely by the king and very great chiefs, the expense of keeping the trained birds required in it being so great.† In the Society Islands *te-a*, or archery, was not only held in the highest esteem, but it was apparently a sacred game, and it could be practised only at certain places and with special ceremonies.‡ I think we have in the sacred or special character ascribed to the use of the bow and arrow by these Polynesian peoples, a proof that they cannot have derived it from a foreign race. Moreover, although there was a general resemblance between those weapons as made by the Tongans and the Fijians, the bow being formed in each case of the mangrove wood or roots, and the arrows of reeds or light wood with harder pieces of wood inserted. Yet such a resemblance is no proof that the weapon was derived by one people from the other. This may have been the case with the Tongan war arrow, however, the name for which *gauhōu* appears, indeed, to be the same as that of the Fijian arrow, *Ngasau*.

The Fijian word for bow is *ndakai*, while "to shoot" is *vana*, a word which curiously enough is applied under various forms by the brown race of the Pacific to the bow. In the Friendly Islands we have *fana*, in the Hervey Islands *ana*, and in the Sandwich Islands *pana*, all meaning "bow"; and also, like the Fijian word, "to shoot." It cannot be said, however, that the Polynesians have derived their words from a Fijian source, seeing that the Malay and allied peoples of the Indian Archipelago have the same word for "bow" as the Sandwich Islanders. Thus, in Sumatra, Madūra, and Bali, we have *panah*, while in other islands, as Java, this word is used for "arrow." It would seem, from Mr. Wallace's vocabularies, to be found also among the inhabitants of the Celebes, Bouru, and Ceram. No doubt the natives of Mysol, who are said to be true Papuans, employ a form of the same word, which with them becomes *aan* or *fian*, but they could easily have received it from the Malay fishermen or sea gipsies, the Bajau referred to by Mr. Wallace, who use the word *panah*.§ The fact of the same term being found among the Malayan and the Polynesian peoples for "bow" appears to be quite inconsistent with the derivation of it by them from the Fijians. The use by certain Papuan peoples of the Malay word for "bow" has, indeed, been referred to by

* "Tonga Islands," vol. i. p. 267, *seq.*

† *Ibid.* i. p. 235.

‡ "Ellis," *op. cit.* i. 217, *seq.*

§ "Malayan Archipelago," vol. ii. p. 457.

Mr. E. B. Tylor and Major-General Fox, but the statement made by the latter that, with but slight variation, this word is employed over the whole of the Papuan and Polynesian region where the bow is known,* is not exactly correct. Many Papuan tribes have, like the Fijians, a different word for that weapon. It is probable that the Polynesian Islanders carried both the weapon and the name for it together from their original home in the Indian Archipelago, and that the Fijians, in the course of their intercourse with the Tongans as described by Mr. Hale,† obtained from them the term for “to shoot,” which the Polynesians, but not the Fijians, apply to the bow.

The word *fana* or *pana* might perhaps be connected with the Malay term *bunuh*, which means “to kill.” Mr. Wallace asserts, however, that not only the Polynesians, but also the Malays, were not acquainted with the bow and arrow. This is an extraordinary fact, if true, considering that the Malay word for the “bow” is used throughout the whole Pacific, but it is hardly probable, seeing that the Javanese, who belong to the Malay race, have employed that weapon for centuries past. Sir Stamford Raffles gives representations of the bow and of numerous forms of arrows used by the Javanese, but he states that the weapon is used now by them only on State occasions,‡ which reminds us of the peculiar position it held among the Polynesian Islanders. Moreover, it is used by the uncivilised Malays of the small islands belonging to Sumatra,§ and is one of the weapons of the warlike Achinese|| of Sumatra itself, although we know too little of the Malays proper to say whether they also possess it. Nevertheless, the comparative vocabulary of Sir Stamford Raffles gives words in Malayan, Madurese, and Bali, not only for “bow” and for “arrow,” but also for the “arrow-barb,” showing that something more than the simple arrow of sport was known to the Malays.

Major-General Fox, who has treated fully of the weapons of primitive warfare, not only refers to the use of the bow and arrow by the Polynesian Islanders, but on philological grounds thinks that they received the bow from a Malay source.¶ The Malay word may however probably be traced to the Sanskrit *Vāna*, an arrow, or to the root *Van*, to kill, injure, thrust, &c.

* “Journal of the Anthropological Institute,” vol. iv, 1874, p. 305.

† *Op. cit.* p. 174, *seq.*

‡ “History of Java,” i, 295. The Hovas of Madagascar have words for the bow and arrow, although these weapons are now used only by some of the northern tribes of that island. See Sibree’s “Great African Island,” p. 216.

§ “Australasia,” edited by A. R. Wallace, p. 341.

|| *Ibid.* p. 338.

¶ Catalogue of the Anthropological Collection, exhibited at the Bethnal Green Museum, 1874, p. 43.

It seems to me that we must now admit that the Polynesian race was acquainted with the use of the bow and arrow before their migrations over the Pacific, although some of the islanders have forgotten it. The source of this forgetfulness is probably not difficult to discover. Herr Peschel is doubtless wrong when he ascribes it to the fact that, hunting being impossible, the chase is not practised by the Polynesian Islanders as a means of subsistence.* We have seen, indeed, that the bow and arrow was used by the Sandwich Islanders and the Tongans in rat shooting, as well as on other occasions of sport. It is more probable that the use of that weapon, as an instrument of warfare, had died out among the ancestors of the Polynesians before the commencement of their migrations, although they carried the knowledge of it with them. This idea is consistent with the fact already referred to that the Javanese have long since given up its use. An analogous state of things would seem to have occurred among the Papuans. As Peschel points out, the Fijians now use the bow and arrow only for throwing missiles into fortified places, or leave it to the women, who thus assist in the defence of their fortified places.† In itself the Fijian weapon is inefficient and it will soon be remembered only as an instrument of sport, as with the Sandwich Islanders. Moreover, notwithstanding Mr. Wallace's statement that the bow and arrow are "almost universal among the Papuans and most of the allied frizzly-haired races,"‡ no trace of them have been met with among the natives of New Caledonia, nor were they known to the Tasmanians or to the aborigines of Australia, except in the extreme north. This fact would seem to show that the bow and arrow were unknown to the dark frizzly-haired race when it first reached the islands of the Pacific, and that the Fijians and the neighbouring allied peoples have either migrated at a later period or received that weapon from the Polynesians since their settlement. If Mr. Hale's opinion that the Fijians are a mixed race, having a Polynesian element, be true, it is of course possible that they may have learnt the use of the bow from the Tongans. The name used by them for this weapon, however, is against such an idea, and the fact that so many other Papuan peoples are well acquainted with it renders it very improbable. The facts would seem to be that at the date of the earliest Papuan migration, applying that term to the Tasmanians and

* "The Races of Man," p. 185.

† *Op. cit.* p. 184.

‡ "Contemporary Review," p. 431. According to the Rev. W. G. Lawes, the use of the bow and arrow among the natives of South-East New Guinea is restricted to the coast tribes, who are supposed to be of Malayan origin. "Journal of the Anthropological Institute," vol. viii, 1879, p. 373.

New Caledonians as well as to the Fijians, the bow and arrow were unknown to their ancestors. After that date this weapon was introduced among the Papuans, and was taken with them on their later migrations to the New Hebrides and Fijian Islands. Probably at that period the bow and arrow was used as an instrument of warfare among nearly all the peoples of the Indian Archipelago, but afterwards it came to be employed only as an instrument of sport or ceremony. Such would have been the case when the ancestors of the Polynesian race left their ancestral home in the Archipelago, and when they reached the Samoan Islands, from which as a new centre they spread, as Mr. Hale clearly shows,* over the Pacific, they carried the bow and arrow with them thus modified in its use and afterwards to be almost entirely forgotten. The Tongans alone used it as a weapon of warfare, owing to their association with the Fijians, who having migrated at an earlier period had retained the use of the bow and arrow for that purpose.

Before bringing this paper to a close I wish to say something with reference to a new name which has been proposed by Mr. W. L. Ranken for the brown Polynesians, and which Mr. Wallace has adopted in the work on Australasia edited by him. The derivation of *Mahori*, the term here referred to, is not given by Mr. Keane, who has also adopted it in his philological and ethnological appendix, but very sufficient reasons have been adduced by the Rev. S. J. Whitmee why it should not be adopted.† I feel much inclined to agree with Mr. Keane's opinion that the so-called Mahori "seem, on the whole, to be a pure unmixed race, if any such are still anywhere to be found on the globe,"‡ and as such it is very desirable that some distinctive name should be given to them to replace that of Polynesians. The word Mahori, however, is not satisfactory, and I would propose another term which has the advantage not only of being a word in common use in all the Polynesian dialects, but also of having a meaning which recommends it for adoption. I will go further and say that it is already employed in the mode desired, as we see from a passage in M. Jules Garnier's work on New Caledonia, where it is said the name *Kanak* is generally given to the islanders of the Pacific Ocean.§ Travellers among peoples of a low degree of

* *Op. cit.* p. 119, *seq.* and see Mr. Gill's work, p. 23, *seq.*

+ "Journal of the Anthropological Institute," vol. vii, 1879, p. 365. Mr. Whitmee proposes to call the Polynesian *Savavori*, a word formed from the names of three chief peoples of that race, but I think Mahori would be preferable.

† *Op. cit.* p. 611.

§ This fact has been cited as a reason for not applying the term *kanaka* as proposed in the text. See Dr. J. Barnard Davis's, "Thesaurus Craniorum," *note*, p. 326, but it cannot be deemed sufficient.

culture are struck by the fact that the names by which these peoples are known among themselves often denote "man," as though they were the only real men. Now a word having this meaning is found with slight dialectic variations among all the Polynesian peoples, and it is the word *Kānāka* referred to by M. Garnier. If we look at the Rev. Mr. Pratt's "Samoa Dictionary," we find that the proper term for "man" or "mankind" is *tagata*. In Tongan the word is *tangata*, as it is also in the native languages of New Zealand, the Union Islands, the Hervey Islands, Savage Island, and the Sandwich Islands. It is even found in the same form in the small islands of the New Hebrides, such as *Nina* and *Mele*, peopled by the brown Polynesians. The Rev. Mr. Whitmee, however, in a note to the last edition of Mr. Pratt's Grammar, refers to the fact that in the Hawaiian dialect the practice has been adopted of substituting in words the letter *k* for *t* and *n* for *ng*, and he states that the same practice is rapidly growing in Samoa. In this way the word *tangata* becomes *kanaka*, or *kanata*, according to whether the letter *t* is exchanged for *k* at both the commencement and end of the word, or only at the beginning, as at *Nukuhiva* of the Marquesas group. It is true that in some dialects the word for "man" appears at first sight different. Thus in Tahiti we have *ta'ata*, and in the Marquesas *anata*, but these words require only the restoration of the letters which they have evidently lost to be recognised as the *tanata* or *kanaka* of the common "Polynesian language."*

I would therefore propose to use as a designation for the brown race who inhabit the Pacific Islands the native term for "man," *kānāka*, instead of the word *Mahori* suggested by Mr. Ranken. A commencement has indeed been made in that direction by the application of that term to the Pacific Islanders in general and to the Sandwich Islanders in particular.† Another reason for, and not an objection to, the use of the term *kānāka* may be found in the fact that it is known in a modified form to not only the dark Fijians, but also the lighter coloured tribes of Micronesia. Father d'Aubenton, in his account of the establishment of the Jesuit Missions in the Carolinas, speaks of the principal people on the islands as *Tamoles*, and from his description of them as having "curly hair, the nose large, eyes large and extremely penetrating, and beard moderately thick," the probability is that they belonged to the Polynesian race, or *kānāka*, or at least to an allied branch of the Papuan race. In the Erakor dialect of the New Hebrides the word for "man" is *Nutamōl*, which may be intermediate between the *tamoles* of

* See the Rev. W. W. Gill's "Life in the Southern Isles," p. 28.

† Wallace's "Australasia," p. 529.

the Carolines and the *tamotu* of the Fijian. The latter term also means "man," and with it is connected the word *tama*, a "father," which curiously enough is found in the Polynesian dialects with the sense of "child," the same word with the accent on the last letter *tamā* being used for "father." We can hardly doubt that this phrase is related to the Polynesian *tane*, a man, or male, through which the term *kanaka* or *tangata*, can probably be traced to its primitive source. In the Tauna dialect of the New Hebrides the word for "land" is *tana*, which in Fijian takes the form of *canua* and in the Polynesian dialects of *fanua* or *lanua*. The word is very valuable as showing the fundamental relationships of the Kanaka race, seeing that, according to Balbi, it is found in most of the Malay dialects in the form of *tana* or *tana*.* and in Malagasy as *tana*, meaning also "land." We may find in these facts another argument for the use of *kānākā* to denote the Polynesian race. For not only does the connection of this word with that used for "land" or "earth," show that the *Kānākā* look upon themselves as essentially an aboriginal race, the people of the soil, but it shows that they are fundamentally connected with other peoples so different from them and from each other in many respects as the Papuans and the Malays. Agreement in language is not by itself a sufficient proof of race affinity, but when combined with other important points of similarity, such as we see between the *Kānākā* and the Papuans, we cannot doubt that they spring from a common source; although the latter have been much more modified than the former by contact with the negroid race, which would seem to have spread throughout nearly the whole of the Pacific area before the advent of the *Kānākā*. On the same grounds the Malays also must be affirmed to bear a relationship, on one side at least, to the black and brown races of the Pacific, although on the other they probably trace their descent to an Asiatic if not Mongolian source. This view is consistent with the theory advocated by Mr. Keane that "Malaysia was originally peopled by the Mahori [Kanaka] race, which afterwards became modified in various proportions by fusion with intruding peoples from the north."†

DISCUSSION.

Major-General LANE FOX PITT RIVERS said that he had not an opportunity of referring to his former remarks on the subject of the distribution of the bow in the Polynesian Island, but he thought his views would not be found to differ from those now expressed by

* This word, and also *tama*, are found in some of the Dyak dialects of Borneo. See Keppel's "Expedition to Borneo," vol. i, appendix No. ii.

† *Op. cit.* p. 322.

Mr. Wake so much as he seemed to suppose. He was not aware that he had ever said that Malay names were employed for the bow exclusively in Polynesia, but that they are in use over a great extent of that region, and the circumstance might fairly be used as an argument for the origin of the bow in those parts. No doubt its disuse might have arisen from a variety of causes.

Mr. KEANE explained that his use of "Mahori" in the Appendix to Stanford's "Australasia," referred to by Mr. Wake, had been necessitated by Mr. Wallace's adoption of that unfortunate term in the body of the work. The word itself he had already elsewhere objected to publicly, and had suggested and since used "Sawaiori" as the collective name of the large brown Polynesian race. This suggestion had been accepted by the Rev. S. J. Whitmee, who intended to substitute Sawaiori for the misleading "Malayo-Polynesian" in his large comparative dictionary of the Eastern Polynesian languages now in progress. Against Mr. Wake's "Kanaka" there would be little to urge had it not already been rendered useless as a scientific designation by the reckless way in which it was currently employed, especially by French writers who applied it to the Melanésians, Mikronesians, Eastern Polynesians, and in fact to all the Pacific races indifferently; but whatever name might ultimately be agreed upon, it was so far satisfactory to find that ethnologists were beginning to feel the necessity of substituting some fresh and more accurate expression for Humboldt's "Malayo-Polynesian." He had otherwise listened with great pleasure to Mr. Wake's interesting paper, which went far to confirm his own conclusions regarding the mutual affinities of the Inter-Oceanic races as embodied in his monograph on that subject published in the last number of the *Journal of the Institute*.* It was obvious that if the Eastern Polynesians were really a bearded race, they must be ethnically separated altogether from the Mongolian, and of course also from the Malay connection, beardlessness being one of the most distinctive and universal characteristics of that type. It did not follow, however, that the Eastern Polynesians must therefore be affiliated to the Papuans, a view which Mr. Wake would scarcely have suggested had he had an opportunity of seeing the monograph above referred to. They differ more from the Papuans than they do from the Malays proper, and their true affinities must be sought in the pre-Malay Caucasian elements of the Archipelago, and the pre-Mongoloid elements of Indo-China.

* See paper "On the Relations of the Indo-Chinese and Inter-Oceanic Races and Languages," by A. H. Keane, Esq. Vol. ix. p. 251.

ANTHROPOLOGICAL MISCELLANEA.

STATURE OF THE ANDAMANESE.

IN my paper "On the Osteology and Affinities of the Natives of the Andaman Islands," in the *Journal of the Anthropological Institute*, November, 1879, vol. ix, p. 111, I endeavoured to calculate the average stature of the race, from a certain number of imperfect and disarticulated skeletons at my disposal, taking as a guide the length of the femur, and assuming that this bone bears to the whole height the ratio of 275 to 1,000, as is generally done in the case of Europeans. I warned my readers that nothing more than a rough approximation could be expected from such a method, as it was far from certain that the same proportion held true in races so dissimilar. The conclusions arrived at were, however, as follows:—Of nine males, average height, 4 feet 9 inches; maximum, 5 feet 3 inches; minimum, 4 feet 6·5 inches. Of ten females, average, 4 feet 6·1 inches; maximum, 4 feet 10·3 inches; minimum, 4 feet 3·2 inches.

In a recent number of the "Proceedings of the Royal Society of Edinburgh" (1878-79, p. 416), Mr. E. S. Brander, in a paper called "Remarks on the Aborigines of the Andaman Islands," has given the actual measurements of thirty living individuals, fifteen of each sex; from which he finds for the males an average height of 4 feet 10·4 inches, the maximum being 5 feet 1½ inches, the minimum 4 feet 7½ inches; for the females an average of 4 feet 6·03 inches, maximum 4 feet 9 inches, and minimum of 4 feet 3·5 inches. The correspondence between the average heights of totally different series of individuals (in neither case very large) and arrived at by such different processes is very interesting.

W. H. FLOWER, F.R.S.

CHASTLETON CAMP. MORETON-IN-MARSH.

By permission of the owner an examination has been made of this interesting site. The suggestion that excavations would be of value is

due to our friend and colleague, George Harris, Esq., LL.D., F.S.A., an early Member of the Institute. Mr. Harris was present on the occasion, and in readiness to receive the party who responded to the generous invitation of Miss Whitmore Jones to inspect, not only the camp, but Chastleton House and the many objects of interest it contains. The excavations were conducted under the direction of E. W. Brabrook, F.S.A., Alfred White, F.S.A., and myself. The castrum occupies a height about half-a-mile from the Manor House at Chastleton, and is popularly known as "The Barrow," though it gives the name, formerly Cestreton, to the estate and parish. It overlooks a field called in early deeds the "Sainfoin Field," in which, at the time of our excavations, a crop was again growing. In form the camp is rectangular, though slightly rounded at the corners, and is about 400 feet in diameter. Traces of two entrances are apparent, through which there is a cart-road leading to the village of Cornwell. Contrary to the usual practice, the ramparts, instead of being formed out of the earth thrown up from the outer ditch, is built up of massive blocks of oolite, the natural stone of the district, and is a monument of great labour. On the left bank of the entrance approaching from Chastleton is a fine old ash tree, the last of four which occupied similar positions on either side of the entrances to the camp. The local historians, Wharton and Plott, were of opinion that the site is that of a Danish barrow of the tenth century. Its true origin, however, has never been recognised until the present examination, which has proved that the whole of the camp is of Roman construction. Pits were sunk and trenches cut, but no evidence, however, could be discovered of prolonged occupation, but in cutting sections through the ramparts deposits of pottery, burnt bones, and charcoal were discovered, indications to those acquainted with the writings of the *Agrimensores*,* or land surveyors, of the means by which they were accustomed to mark the limits of territory under Roman occupation, and affording further proof of Britain having been included in the same system of organization as that which prevailed in other provinces of the empire.

The position accorded to the trees is also a further illustration; such were often used as terminal marks, and in the selection of the four ash trees we discern a survival of the practice. As a rule, however, they were brought from a distance, *arbores peregrinæ*, their rarity in the district constituting a further distinctive mark. Mr.

* See Treatises by Siculus Flaccus, Faustus et Valerius, and others, in Lachman's edition of the "*Gromatici Veteres*," 2 vols. 8vo. Berlin, 1848-52. The following quotation from the former author is sufficient for the purpose, it also indicates how such deposits might be varied as to the nature of the objects selected: "*Si enim essent certæ leges, aut consuetudines, aut observationes, semper simile signum sub omnibus terminis inveniretur; nunc quoniam voluntarium est, aliquibus terminis nihil subditum est, aliquibus vero aut cineres, aut carbones aut testea, aut vitrea fracta, aut asses subjectos, aut calcem aut gypsum invenimus; quæ res tamen, ut supra diximus, voluntaria est, carbo autem aut cinis quare invenitur, una certa ratio est quæ apud antiquos quidem observata postea vero neglecta.*"

Coote, quoting the old writers,* speaks of the planting for such a purpose, date, almond, and quince trees in the neighbourhood of Constantinople, and olive with elder trees, etc., in the vicinity of Carthage.

Among the miscellaneous objects found were a bone pin of neat workmanship, a flint flake, burnt pebbles, and various burnt shells, chiefly *Terebratulæ*. Several animal bones were also found; these we submitted to the inspection of Prof. G. Rolleston, M.D., F.R.S., who has very kindly favoured me with the following report upon them, dated from Oxford:—

REPORT ON BONES FROM CHASTLETON.

I was reluctantly obliged to decline to join the excursion to Chastleton, but I have been favoured with a small box of bones from that pleasant place, of which I will now say a few words.

All the bones, with two or three exceptions, are bones of domestic animals. The exceptions are constituted by two lower jaws and one upper jaw of the Water-Rat, *Apricola amphibia*. These jaws have a certain interest as they are just the parts which the Polecat, *Mustela putorius*, leaves behind, and rightly as the large rootless molars and the strong incisors of this harmless vegetable-feeding Rodent would be a hard thing for his sharp scissor-like teeth. I have found large quantities of these jaws, handfuls in fact and without exaggeration, in the lairs of polecats. The polecat is a river-haunting riparian animal, but will carry even frogs a long way away from the marshy places he finds them in.

Sus scrofa, varietas *domestica*, is represented by a few incisors. The pig, being a beast familiar to man from the very earliest times as his solidarity with man in supporting the life phases of more than one Entozoon shows, is rarely absent from the earliest prehistoric finds of Neolithic times.

The Cow, *Bos* (probably) *longifrons* is also represented, but scantily.

The Sheep, *Ovis aries* or *Gout* (there are no differentiating parts left) is also proved to have been in existence and in availability for man's use by a larger quantity of bones and some teeth.

The Horse, *Equus Caballus*, of small size, or possibly *Equus asinus* (for I have no means of ascertaining the age of these bones, nor of saying whether they did or did not belong to those "far-off times" when "our land did breed no asses"), is represented by a single *Os Calcis*.

There are no human bones, nor canine, nor feline in this series. But the bones are so broken as to prove they were "mauled" by man

* "Ex libris Magonis et Vegore," Lachman, p. 350. "Nam in locis campestribus rariores terminos construximus, et maxime arborem peregrinam plantavimus." See also "Liber Colonialium," Faustus et Valerius, &c. "The Romans of Britain," H. C. Coote, F.S.A., p. 67

for his *man*, and some look as if they might have been mumbled or gnawed by the dog for his. With these came one of those darning-needle-like awls made out of the long bone *tibia* of a small ruminant, possibly *roe*, *Circus capreolus*, but also possibly sheep or goat. I get them from many places in this neighbourhood, of many stages in development of the world's history. They would make good packing-needles now-a-days. I do not see why these bones should not be, as far as any indications they themselves furnish, and I have no other before me of any age, not nearer to us than some 500 years or so.

GEORGE ROBERTSON, M.D.

There is nothing, therefore, in the objects found to illustrate a period, either earlier or later than the Roman occupation. And from the position and structure of the camp it would seem to be one not intended for permanent occupation, but hastily thrown up, perhaps, as suggested by Mr. Roach Smith, F.S.A., to meet some pressing emergency. It was, however, constructed upon the same principles as those which invariably guided surveyors and engineers. It adjoins the Akeman Street, a minor Roman way, running from the east of Britain to Cirencester and Bath, and is on the confines of three counties, Oxfordshire, Gloucestershire, and Worcestershire.

JOHN E. PRIEL, F.S.A.

THE ALLEGED EXISTENCE OF SCYTHE-CHARIOTS IN ANCIENT BRITAIN.

IN the interesting communication read before the Institute by Mr. E. B. Tylor in April last, "On the Origin of the Plough, and Wheel-carriage," a statement occurs to the effect that the Ancient Britons used chariots with *scythes* attached to the axles. This of course is founded upon the passage in "De Orbi in Situ" of Pomponius Mela (iii. 6.) As I have not an edition in the Latin before me I can only quote the translation. "They fight not onlie on horsebacke and on foote, but also in Wagons and Chariottes, and are armed after the manner of the Galles. They call those Chariots *Covines* (Covines,) which are set with sitthes round about the naues. (naves.)" page 79.* My object is to call in question the truthfulness of Mela's account. Caesar makes no mention whatever of the *covinus*, but of the *essedum* he does, and Tacitus does not describe the scythe-chariot, although the word *covinus* occurs. (Agricola. 35-36). No writer upon Britain, known to me, of any position as an *authority*, mentions this form of chariot, and Mela must be accepted with some caution, as he never visited Britain (although this bare fact is of no value): but those

* "The worke of Pomponius Mela, concerninge the Situation of the World, etc." by A. Golding. 1585.

writers who have more fully described this country, and the manners and customs of its people, are silent in this respect, especially Cæsar. In all the excavations in Wales and Caledonia, not a single relic has been discovered, to show the existence of scythe-chariots, and all the statements of later historians and writers upon Celtic History, are but copies of Mela, Lucan or Silius, and valueless. The account of the discoveries made in Yorkshire, and the County of Moray, of the remains of a charioteer, throw no light upon the question raised, for the chariots appear to have been of the *essedum* type. (Wilson: "Prehistoric Annals of Scotland," vol. ii. pp. 153-158.)

Time prevents me from following this subject to its limits, but it will be interesting to know if the sickle or hook preceded the scythe, although it might be advanced that Mela merely meant *blades of metal*, similar to the scythe, as known to him. *Sickles* or implements so designated, have been discovered in Ireland and Scotland (Wilson, vol. i, p. 401.) But so far as I am aware, no scythe or blade so-called has been found, attributable to so remote a time as the Roman occupation. Mela, unsupported by a stronger authority than those herein cited, is of very little value, and upon whom reliance should be withheld for further evidence, than even Tacitus' meagre allusion.

J. JEREMIAH, M.A.I.

In connection with this subject, the following references to classic literature have been communicated by Mr. Tylor since the reading of his Paper.

"Pomponius Mela, in the passage referred to (iii. 6) describes the Britons as fighting not only with horse and foot, but with chariots, and armed in Gallic fashion; the chariots which they call *covin*, are used with scythes to the axles. 'Dimicant non equitatu modo aut pedite, verum et bigis et curribus, Gallice armati: *covinos* vocant, quorum falcatis axibus utuntur.' Mela wrote under Claudius about A.D. 45, and therefore is good contemporary authority, but both the *covinus* and the scythed axles are elsewhere mentioned in the first century (see Lucan, i. 426: Tac. Agric. 35-36 Sil. Ital. xvii. 422.) The last of these passages is curious from the epithet 'cæruleus' = 'blue,' possibly referring to the British warrior's blue war-paint.

'Cæruleus haud aliter cum dimicat incola Thules
Agmina falcifero circumvenit arcta *covino*.'

E. B. TYLOR, F.R.S.

THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

APRIL 27TH, 1880.

Major-General A. LANE FOX PITT RIVERS, F.R.S., *Vice-President
in the Chair.*

EDWARD TYRELL LEITH, Esq., LL.D., was elected a Member of the Institute.

The following presents were announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

From Prof. AGASSIZ.—Bulletin of the Museum of Comparative Zoology at Harvard College, Cambridge, Mass., Vol. VI, No. 4.

From the AUTHOR.—A Vocabulary and Outlines of Grammar of the Ntlakapamuk or Thompson Tongue, together with a Phonetic Chinook Dictionary. By J. B. Good.

— Recherches sur les dimensions générales et sur le développement du corps chez les Japonais. By Mrs. Chaplin Ayrton.

From the ACADEMY.—Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg. Tom. 26. No. 1.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1430, 1431.

— Bulletins de la Société d'Anthropologie de Paris, 1879, Part 4.

From the INSTITUTION.—Journal and Report of the Royal Institution of Cornwall, No. 22.

From the EDITOR.—"Nature," Nos. 546, 547.

— Revue Scientifique, Nos. 42, 43.

— Revue d'Anthropologie, No. 2.

— Revue Internationale des Sciences, No. 4.

— "Correspondenz-Blatt," April, 1880.

— "Athenæum," No. 628.

The following paper was read—

FURTHER NOTES *on the ROMANO-BRITISH CEMETERY at SEAFORD, SUSSEX.** By F. G. HILTON PRICE, F.G.S., and JOHN E. PRICE, F.S.A.

HAVING been fortunate in obtaining a renewal of the kind permission to excavate on the Sutton Downs granted us by Mrs. Harison, of Sutton Place, and the Rev. John Harison, of North Sutton, in June, 1876, we continued the explorations for a few days during the summer of last year.

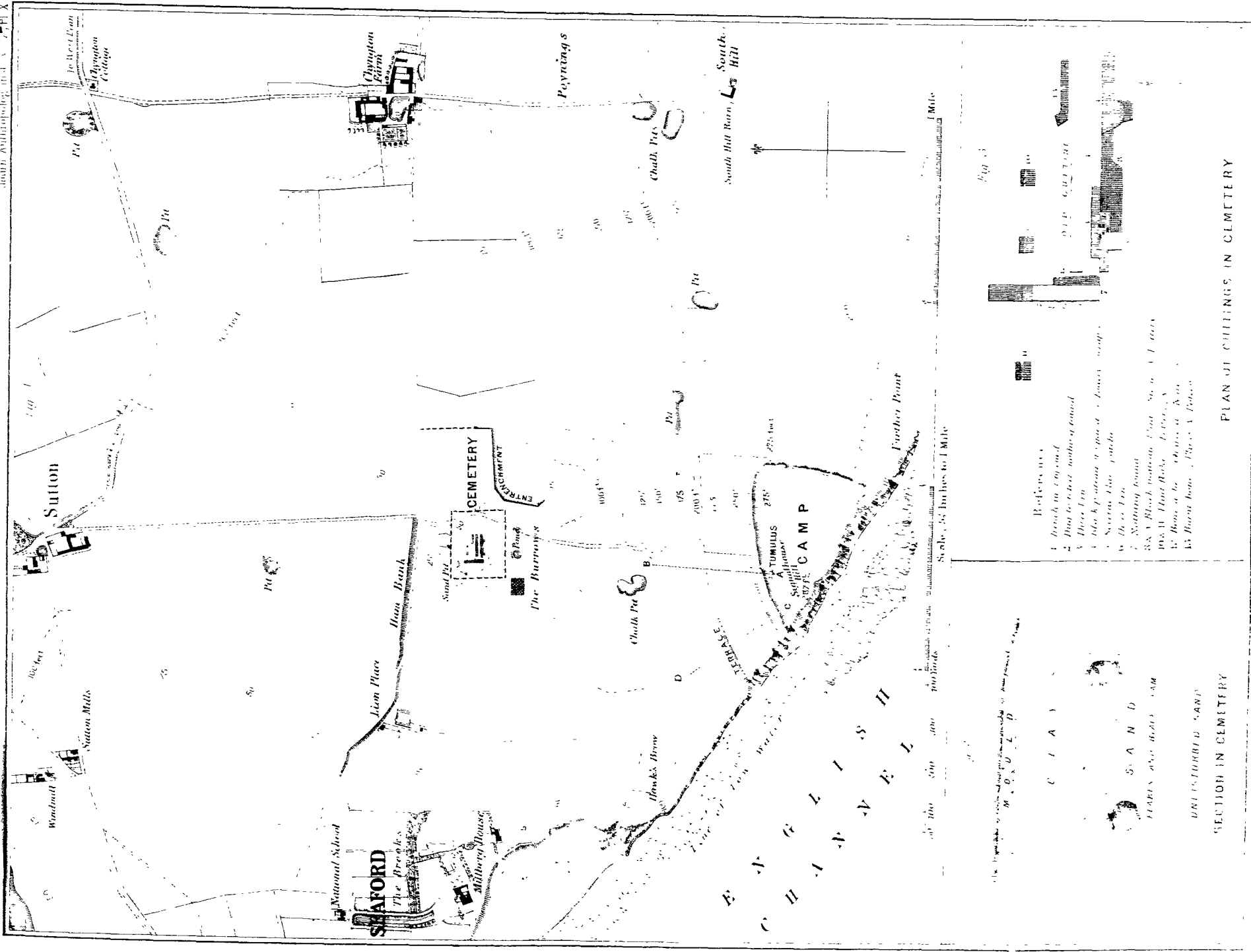
In our first notice† we erroneously supposed that this particular portion of the Downs in which we found the cemetery was called the "Warren," from the fact of its being a place swarming with rabbits, but we have since ascertained that the Warren properly so called is further to the westward, and that the spot in which we excavated is known as the Little Bury. In the published description of the cuttings made, we ascribed numbers to each, ranging from 1 to 7, and as the present communication is intended as a continuation of the previous paper we think it desirable to continue the numbering for these cuttings.

On 26th May, with three men, we commenced digging, between numbers 6 and 5, working westwards towards No. 4 on our section; this fresh trench is numbered No. 8. The trench was cut to a depth of about 6 feet; in some places where the hard sandy rock was met with at a less depth we did not pierce below it, thus in many parts we did not exceed a depth of 5 feet.

At from 4 feet to 4 feet 6 inches several black patches were observed in which fragments of burnt pottery, flints, pieces of

* In a map preserved in the British Museum relating to a survey of the Sussex Coast in the reign of Queen Elizabeth, made by Sir Thomas Palmer and others, the site of the Roman Camp on Seaford Heights is described as "Burdyck Hill," and it shows two beacons thereon. It is also known as Castle Hill and Signal Station.

† "Journal Anthropological Institute," vol. vi, p. 301.



charred bones and bits of charcoal were found; most of these patches contained one or more iron nails. Some of these black deposits were placed upon a quantity of stones and flints, all bearing marks of fire. As previously suggested, these black spots in the sand probably mark the place where interments have been made. After the body was burnt on the funeral pyre, the ashes were collected and placed in a cloth or in a napkin, and fastened together with the iron nails; these were doubtless instances of where the people cremated were of a poor class, probably soldiers or slaves whose friends were not in a position to afford the expense or luxury of a funeral urn.

The custom of entombing such vessels with the remains of the deceased was practised by other nations besides the Romans; for example, among certain Indian tribes, the Moldavians, Caubees, etc., and modern history tells us of the custom among the Chinese and Peruvians.*

It often happened that in out-of-the-way settlements, that is to say, stations far removed from a city or town, that the Romans made use of domestic pottery for funeral use. Among sepulchral vessels found in a *ustrinum* at Litlington, near Royston,† was a small bottle of green glass; it had contained the ashes of a child, but a fragment of bone had evidently been too large for the bottle, so a portion had been chipped off to allow of its insertion; the broken piece had been afterwards replaced to close the aperture. If the vessel had originally been intended for the purpose, one sufficiently large would have been selected. At Colchester, in 1844, an amphora was discovered broken at the neck and handles. It contained a lachrymatory and lamp, a cinerary urn, and a coin of Faustina, with other objects, and the upper portion had been clearly reinstated by the depositors after the contents had been incased, and at times they were purposely broken for such use. Occasionally broken urns, perhaps second-hand ones, and mended urns—were used, as was proved at this very cemetery the last time we had the pleasure of describing the results of our digging.

In this same trench a neolithic celt was found (*see* Pl. XI, fig. 5), fragments of pottery, red tiles, and bits of brick. A little further on, at a depth of 4 feet from the surface, a large patch of blackened earth, mixed with charcoal, flint flakes, and upwards of 90 iron nails and studs, mixed with fragments of charred bones was met with. This is quite an exceptional case meeting with such a large quantity of nails in one interment; it is a common occurrence to meet with two or three together, but

* *Vide* Nicolo de Coti on the Habits of the Indian Tribes, Belleforest's "Co-mography," vol. ii, book iii, ch. 29.

† "Archæologia," vol. xxvi. p. 271

in this find some were large and others quite small, apparently suggesting that the remains of the ashes after the burning were gathered together and deposited in a small wooden chest or box, ornamented with the small nails, the wood of which has long since decayed; no personal ornament or coins were found with it.

Continuing this trench towards the old cutting No. 4, we came upon the same black seam of earth, clay, flints, stones, and pottery mentioned by us in our former paper (*see* page 306, "Journal Anthropological Institute," vol. vi); this same seam was likewise met with upon the same horizon, *i.e.*, at a depth of 4 ft. 6 in. from the surface, at the cutting marked No. 9 on the plan. This circumstance proves that the place occupied by the funeral pyre was of considerable extent, and was probably the *Bustum* or *Ustrinum* of the settlement. Another round flint ball was found here.

In this same cutting on the third day we continued excavating, and soon came upon some lumps of chalk rubble in the sand. As this was an unusual circumstance, great care was observed in removing the earth; in the midst of these pieces of chalk, a brownish-black vase, $5\frac{1}{2}$ inches high, of a superior texture of Upchurch pottery was met with. It was ornamented with oblique markings, inclosed within incised concentric lines, and $1\frac{1}{2}$ inches from the rim is a raised band encircling the vase above the shoulders. Next to it, on the left, was a black patera, 7 inches in diameter, which was unfortunately very much broken, but sufficient was recovered to put together and show its size and shape. The patera, it will be seen, is of a coarser texture than the vase, which is really fine and of elegant shape (*see* fig. 6); with the exception of the two flint flakes, nothing else was found near it. These vessels must have been placed in the position in which they were discovered as an accompaniment to an urn, which we failed to find; but the ground immediately to the north of this was part of the trench cut in 1825 by Mr. Harison, and the remainder of the interment was probably discovered at that time.

Having now completed the section 6 to 4, it was filled in, and two men were detached to sink trial shafts at the spots marked 10 and 11; but nothing, with the exception of flint flakes and fragments of pottery, were met with, and these were in the top layer of earth.

Another section was cut on the little mound to the south of the Little Bury, but nothing was discovered.

On the 29th May four men were occupied in cutting a trench 12 feet long and 5 feet deep by about 6 feet broad, north and south, at the place marked 12 on the plan; as in 1825 a large

number of urns and coins were met with in the old cutting, which was alongside of it—and which we hoped might be found as fruitful; nothing was, however, met with, with the exception of one black patch, containing bone ashes, bits of charcoal, nails, and fragments of pottery; in the soil thrown out flint flakes and bits of pottery were numerous.

We likewise opened a supposed tumulus upon that portion of the Downs known as the Gore,* just above Green Street, and to the east of the old cottage, and made some trenches near it; but, with the exception of fragments of Roman pottery and flint flakes, we found nothing.

What is the origin of the term “Gore” for this portion of the Downs? Was it a triangular holding, and the name conferred upon it in Saxon times, or was it the site of a battle, and so named from the fact of much blood having been spilled there? Halliwell gives the meaning of it as the lowest part in a tract of country, or a small narrow slip of ground.

Quite late in the afternoon of the 29th May, whilst the men were engaged filling in the old trenches, we cast about for another suitable place to make an excavation, finding some raised ground a little north of that part of the Downs marked “The Burrows” on the map, which is situated 194 feet due west of the pond, and 114 feet south of the sand-hole. Observing a rabbit-hole in this raised ground, in the mouth of which a few fragments of pottery had been scratched out by rabbits, induced us to dig out a few spadeful of earth; by so doing, we were agreeably surprised by discovering an urn of black pottery, through one side and bottom of which the rabbits had actually forced their way: this contained fragments of charred human bones. It consisted of black pottery, and was 9 inches high; owing to its condition we were precluded from taking any other measurements. Just below the rim was a narrow band of ornamentation, consisting of oblique incised lines unevenly cut, apparently done with a blunt instrument; in parts other incised lines cut the former, forming a sort of cross pattern. Between the shoulder and the base was a large incised trellis pattern. Close beside it was another of reddish brown ware, but too much broken to be of any use. The next day (30th May) five men were put upon this digging—the turf was removed and we commenced making a long trench at a depth of 2 feet 4 inches; about the centre of the elevation a fine urn was found. It is composed of reddish brown pottery—7 inches high by 29½ inches in the widest part, and 17 inches round the base. It was full of

* So described on a map of the Sutton estate, by Thomas Marchant, 1772, measuring 20 acres 3 roods 6 perches, and belonging to Launcelet Harison, Esq.

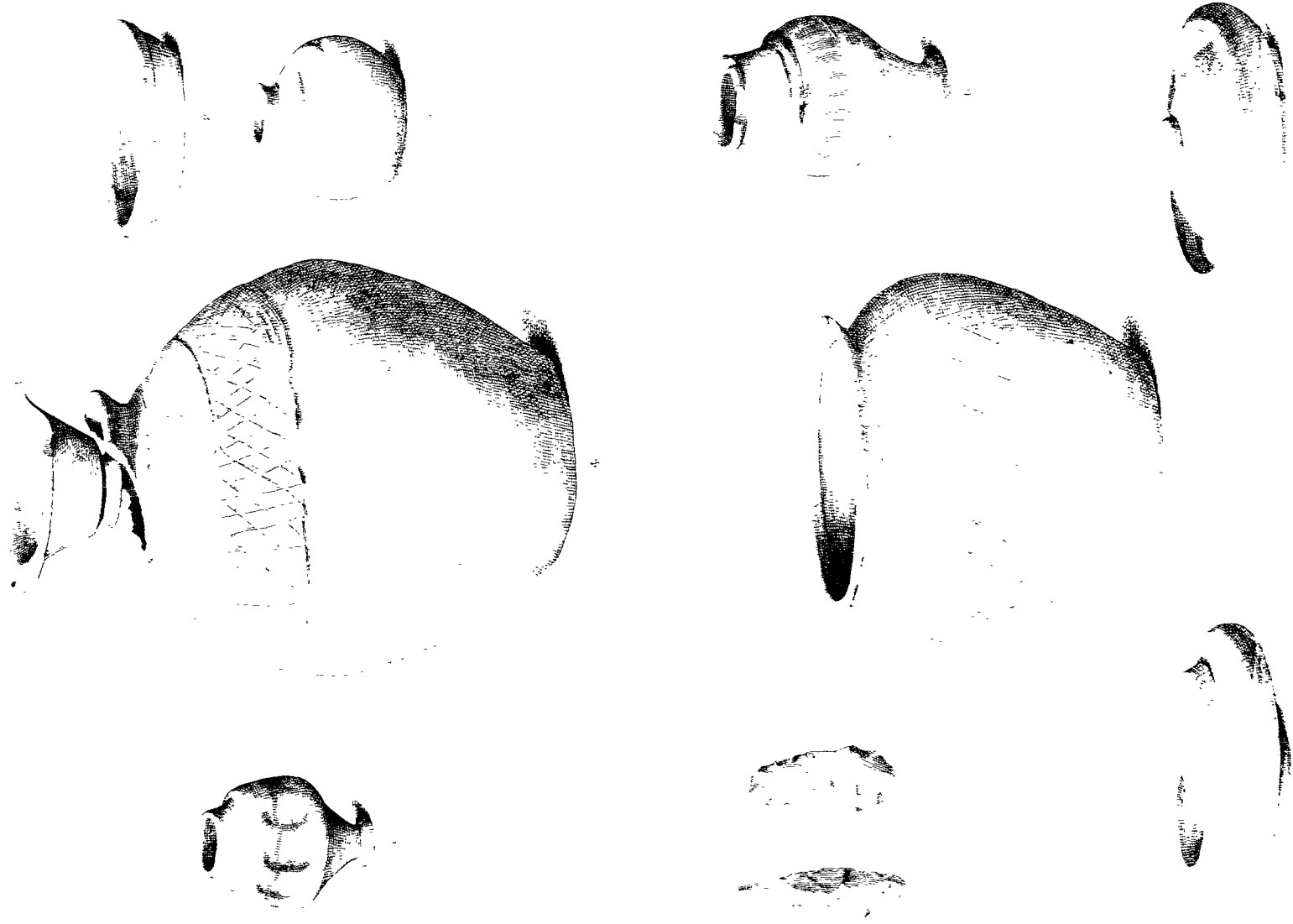
human bones, fragments of charcoal, and a flint flake. This urn is ornamented round the widest part with an incised trellis pattern, and upon the bottom is an incised cross. It is quite perfect (*see* fig. 7). A little to the right of this, at only 1 foot from the surface, a small urn of black pottery was discovered, which fell to pieces on getting it out. This we repaired. It is $4\frac{1}{2}$ inches high by 22 inches in circumference in its widest part—12 inches round the base. Beneath the rim are two deep concentric lines, between which it is ornamented by three lines slanting obliquely to the left, resting at the apex of the third line against three other lines slanting in a like manner towards the right. This urn contained a small quantity of fragments of charred bones very much decayed.

Immediately behind this last described urn, in a position due north and south, at a depth of $2\frac{1}{2}$ feet from the surface, we found a portion of the rim of a Samian ware vessel; the spades were now laid aside, and with a strong knife the earth was cut away in the place where this fragment was met with, and revealed a fine Samian cup, measuring $5\frac{1}{2}$ inches in diameter, $2\frac{1}{2}$ inches high, with a rosette at the bottom. On developing the form before attempting to remove it from the ground, we found directly below it a rim of an urn projecting from the side of the trench; following this down with the aid of the knife, we discovered that this Samian vessel formed a sort of lid to a large brownish-red earthenware urn (*see* fig. 4).

This urn measures 12 inches high, 34 inches round the widest part, and 19 inches round the base; it is ornamented on the shoulder with a band 2 inches in width, between two deep incised lines, in which are cross markings representing trellis work; before this band is another, $1\frac{1}{2}$ inches deep, just below the brim, ornamented with occasional lines.

Before we could remove it from the earth the ground all around it had to be carefully cut away. On making room on the left-hand side close beside this urn, a small drinking cup 4 inches high, of the pottery known as Durobrivian ware, was taken out quite perfect; it is of a brown metallic glaze with eight indented or pinched-in compartments; it is otherwise embellished with two concentric lines with stamped markings passing through the compartments. These stamped markings are such as would now be produced by pressing the milled edge of a half-crown round an earthenware vessel before it was fired (*see* fig. 1).

In making similar preparations for removing the earth on the right-hand side of the urn, a small globular-formed bottle (fig. 3), 3 inches high by 12, without handle, of a coarse brown, thick pottery, which pottery is full of pieces of flint grains, was found quite close to the side of the urn; directly behind it was a black



patera $5\frac{1}{4}$ inches in diameter of Upchurch pottery (fig. 2). Upon the removal of these small vessels we were able to take out the urn, which was intact with the exception of a portion of the rim ; it contained a large quantity of charred human bones and flint flakes. Owing to the Samian cup resting upon the top of it, no earth had fallen into it. This was evidently the interment of a person of some rank or importance, judging from the superiority of the vessels found with it. The Samian cup has the initials "V.E." scratched upon the side.

As this was an interesting find, particularly so as all the pieces are perfect, we have given an illustration of the manner in which they were all placed in the grave.

On the 31st May, with five men we continued the excavation in a direction due north and south ; it was a remarkable circumstance that in this particular spot all the urns were found lying in that position.

At a depth of 1 foot 6 inches from the surface the fragments of an urn of very fine yellowish red pottery were discovered ; there was not sufficient of it collected to repair, but the base of it measured $3\frac{1}{2}$ inches in diameter. At the same level and in close proximity, the base of a coarse brownish urn was met with, this, too, had been too much crushed to do anything with ; it measured 16 inches round the base and had a double cross or star incised upon the bottom of it. In close contact to this was another, No. 8, of reddish-brown pottery, bearing marks of having been turned on the lathe ; like the two former, the base only can be put together : it was a low open-mouthed vessel, measuring 13 inches round the base and does not bear any marks or ornamentation.

At a depth of 1 foot 2 inches we came upon a red cup of Samian ware with a turn-over rim ; it bears indications of having been covered over with red glaze, portions of which still remain underneath (figs. 8 and 9). This patera is not as fine as most Samian pieces, which makes us think it was of provincial manufacture, particularly as it is very unusual for Samian pottery to lose its lustrous glaze. Such ware has, however, before been found in Sussex, and sometimes of a superior character. Among sepulchral remains discovered at Densworth, in the parish of Funtington, and with examples of glass, were pateræ of Samian pottery. Among the coins then found were some which gave a clue to the age of the deposits ; for instance, a brass of Hadrian, legible but in bad condition. The presence of such Samian vessels would, apart from numismatic evidence, at once connect these burials with the Roman period. This ware was in universal use, and though the finer descriptions were doubtless imported from manufactories on the continent, there is much

to favour the opinion that it was also fabricated in Britain. Of late years a mould for the production of one of the large embossed bowls has been found at York, bearing a strong resemblance to similar objects discovered in the neighbourhood of the Rhine; the deposits of such ware in the locality known as the Pan Rock, off the coast near Whitstable and Herne Bay, are also indications that potteries once existed there for the manufacture of this lustrous ware, akin to those so well known in connection with the black pottery at Upchurch Marshes. The inside measure is $5\frac{1}{2}$ inches in diameter, in the widest part of the rim it measures $7\frac{1}{2}$ inches in diameter, and is 3 inches high. The outside beneath the turnover rim tapers down to the foot, which is two inches in diameter.

Within a few feet of the latter we discovered a red patera of Samian ware, bearing a lustrous glaze; it was unfortunately broken before removing it from the earth, but we have roughly mended it. It is $7\frac{1}{2}$ inches in diameter and $2\frac{1}{4}$ inches high; beneath it was a first brass of Faustina the younger, daughter of Pius, and wife of Marcus Aurelius. It was highly satisfactory finding this coin, as by so doing we have an approximate date for the interment, and can positively assert that it was not earlier than quite late in the second century, as Faustina flourished between 161 and 180 A.D.

Immediately above these two Samian vessels was an urn of thin reddish-brown pottery (No. 9), which was unfortunately crushed in the ground, probably owing to its being so near the surface.

Much of it was decomposed from the effects of the moisture. At two inches from the rim it was ornamented with a concentric furrow, beneath which are short vertical cuts, a quarter of an inch in length, made with a blunt tool; one and a-half inches below was another furrow and a similar line of markings. This urn had contained bones, as several fragments of charred bones were met with mixed up with it, likewise a large flat flint flake, and an iron nail.

We continued digging about this place for about a whole day, but as no further indications of an interment were visible, and supposing that we had worked out this spot, we caused the whole to be filled in.

On the 2nd June we recommenced operations in the Little Bury, at the place marked No. 13 on the plan. We dug a trench east and west and discovered several black patches in the sand similar to those found in trenches No. 6 and 8, containing burnt bones, burnt flints, potsherds, flint flakes, and a neolithic celt.

The foregoing researches close for the present our operations

at Seaford. It is probable that much more could be done, but the work accomplished, both as regards the camp and the cemetery outside its ramparts, is sufficient for the purpose. On the range of downs between the valleys of the Ouse and Cuckmere there are many barrows which have been partially examined from time to time. In these, instances of cremation and inhumation occur side by side, and the pottery discovered partakes of that mixed description known as British, Romano-British, or Roman pottery. Of indications of an earlier occupation than that illustrated by the rough air-dried earthenware technically known as British pottery no record exists; anything that can be properly styled "prehistoric" may be said to be conspicuous by its absence. The people whose remains are from time to time disinterred upon the Sussex Downs are mostly those of an age little antecedent to the Roman occupation; indeed the association that is continually met with in all such researches as at present, points to a common resting-place both for the native and colonising race.

The Chairman exhibited and described a series of plans and relics in connection with his recent explorations at Mount Caburn, near Lewes. A discussion ensued in which Mr. F. G. Hilton Price, F.G.S., Mr. John E. Price, F.S.A., Mr. A. Tylor, F.G.S., Mr. A. L. Lewis, M.A.I., Mr. J. Park Harrison, M.A., and others took part.

Notes on FIJIAN BURIAL CUSTOMS. By the Rev. LORIMER FISON.

THE Rev. Thomas Williams, in his valuable work on "Fiji and the Fijians," has described the funeral ceremonies which came under his notice. To that account many interesting particulars may be added, for there is no uniformity of custom in Fiji, and no description of what is done by any one tribe can be taken as applicable to all the others.

One custom, however, seems to have been everywhere practised, namely the strangling of widows that they might be buried with their dead husbands. On the death of a great chief, many women were thus sacrificed, the victims being generally his *watina lalai*, or "little wives," i.e., women of inferior rank, though sometimes one or more of the *watina mbau*, who were all *murama*, or ladies of rank, would volunteer to be buried with him. The strangled women were called the *thōthō*, or "carpeting of his grave."

In some parts of the group it is* the duty of the widow's brother to perform, or least to superintend the strangling, and he is summoned to do his office either by the kinsfolk of the deceased or by the widow herself. In one case within my own knowledge, a chief was found dead under his mosquito curtain by his wife. She at once went in search of her brother. "O Matakimbau," she cried, "Malani is dead! Take pity upon me and strangle me to-day." "All right," her brother replied. "Go now and bathe yourself, and put on your ornaments. You shall be strangled by-and-by." And strangled she was in spite of the resident missionary's efforts to save her life.† At Solevu (Vanua Levu) I was told that sometimes the friends of the deceased wish to spare the widow, and intercede for her with her brother, who is always at least ostensibly unwilling to grant their request. If their entreaties be of no avail one of them (probably he who wants to marry the woman) takes hold of her arm, and tries to drag her away. Her brother seizes her by the other arm, and a struggle ensues, on the issue of which depends the woman's fate. If her brother prevail, she is strangled without more ado; but if her husband's kinsman prove the stronger her life is spared. It is quite possible that the brother's unwillingness to spare the widow may be always real, for the man who fails to strangle his sister on the death of her husband, is despised by his brother-in-law's kinsfolk, and is ashamed to visit them; whereas he who fulfils the duty is honoured by them, and is treated with marked respect whenever he goes to see them. Moreover, a substantial mark of their regard is bestowed upon him, the strangling cord being hung up by them on a piece of land, which thereby becomes his property.

A man belonging to the Nandi tribe (the nearest neighbours of those Solevu folks, and *therefore* continually fighting with them) said to me, "I have found the good of the strangling; twice it has saved my life. My father was a Solevu man, and was killed when I was a child. My mother was strangled at Solevu by her brother, and he brought me here to Nandi, and reared me.

"Twice in war time I came suddenly upon the Solevu warriors, and crouched down, expecting death. The clubs were raised to kill me, but some one who knew me cried out, 'his mother was strangled among us,' and they saved me alive. They took me to

* It must be borne in mind that the present tense is used in this memoir for the sake of convenience, where the past tense ought to be employed. Most of these customs have been abandoned since the introduction of Christianity by the Wesleyan Mission.

† It is scarcely necessary to say that she and her friends were heathens.

the town, made a feast for me, and sent me away with many presents."

When a woman is about to be strangled that she may be buried with her husband, she is made to kneel down, and the cord (a strip of native cloth) is put round her neck. She is then told to expel her breath as long as possible, and when she can endure no longer to stretch out her hand as a signal, whereupon the cord is tightened, and soon all is over. It is believed that, if this direction be followed, insensibility ensues immediately on the tightening of the cord; whereas, if inhalation has taken place, there is an interval of suffering.

An excuse for the practice of widow-strangling may be found in the fact that, according to Fijian belief, it is a needful precautionary measure; for at a certain place on the road to Mbulu (Hades) there lies in wait a terrible god, called Nangga-nangga, who is utterly implacable towards the ghosts of the unmarried. He is especially ruthless towards bachelors, among whom he persists in classing all male ghosts who come to him unaccompanied by their wives. Turning a deaf ear to their protestations, he seizes them, lifts them above his head, and breaks them in two by dashing them down on a projecting rock. Hence it is absolutely necessary for a man to have at least one of his wives, or at all events, a female ghost of some sort following him.

Women are let off more easily. If the wife die before her husband, the desolate widower cuts off his beard, and puts it under her left armpit. This serves as her certificate of marriage, and on her producing it to Nangga-nangga, he allows her to pass.

In some places the chief's favourite henchman also is buried with him; and in other places we find evident survivals of this custom, though the custom itself has died out. Thus on the death of the Terandrekéti, or chief of the Tokatoka tribe, his follower lies down in the grave with the strangled women until the body is lowered, and then returns to the upper air. At Matailombau (an inland tribe of Navitilevu), the headman of the "undertakers," called the Mbouta, retires after the burial of the chief to a solitary hut which has been built for him in some out-of-the-way place, and remains there for several months in seclusion. The whole neighbourhood of his dwelling is strictly *tambu* (tabooed) to all, excepting certain persons who are appointed to take him his food, which they do secretly by night; and a warning mark is set up at the place where he goes to bathe, that all passers by may know it is the *silisili ni Mbouta* (the Mbouta's bath), and so avoid it. At Vunda, on the north-west coast of the same island, when a chief is buried, the two

headmen of the grave-diggers, who are his Ngganggáli, retire after the funeral to a house in the town and remain there, it may be for a whole year. They paint themselves black from head to foot, and only leave the house by night. If compelled to go outside during the day, they cover themselves with a mat. A fiction is kept up that they are invisible, or rather non-existent. People may be coming and going to and from the house all day long, but they take no notice of the Ngganggáli; in fact, nobody is supposed to see them. Their food is brought into the house in silence, or is formally presented to imaginary guests with the usual speech.

At one place, at least, on the island of Vanua Levu, there is a ghastly custom. A noted "brave" is distinguished from the common herd after death by being buried with his right arm sticking out above the gravemound, and passers by exclaim with admiration as they look upon the fleshless arm, "Oh, the hand that was the slayer of men!"

In many widely separated parts of the group a custom prevails which is found in Central Africa also, and elsewhere. For some days after the decease of a ruling chief, if his death be known to the people, the wildest anarchy prevails. The "subject tribes" rush into the chief town, kill pigs and fowls, snatch any property they can lay their hands on, set fire to houses, and play all manner of mischievous pranks, the townsfolk offering no resistance. Hence the death of a ruling chief is studiously concealed for a period varying from four to ten days. At Nalawa (Navitilevu) a log is placed on his bed, covered with his coverlet, and his attendants sit by fanning it, and talking to it as if he were still alive. These attendants are men belonging to a clan whose business it is to nurse the chief when he is sick, and to bury him when he dies. They take sole charge of him during his last illness, remove him to the Mburekalou (god's house, or temple) whence they jealously exclude all but themselves; and when he dies they conceal his death even from his nearest kinsfolk. Elsewhere, the headman of the Mbouta before mentioned personates the dead chief, and issues his orders from within the mosquito curtain of native cloth, in the faint querulous tones of a sick man.

When the secret oozes out, the people come rushing in great excitement to make inquiries, and are blandly informed by the Mbouta that they are too late. "Is the chief dead yet?" "It is he who was buried ten days ago." "*Sa nggai rusa na yangona.*" ("His body is decomposed by this time.") And the baffled inquirers go away grumbling, for their opportunity has passed away and is lost. The idea seems to be that not until decomposition may be supposed to have made considerable progress is

the dead man fairly done with, and his authority handed over to his successor. The dead hand can no longer wield the sceptre, but it has not yet relinquished its grasp; and the old communal idea asserts itself now that the power which kept it down is in abeyance. Hence the interval of anarchy if the death be not concealed. I have met with traces of a similar belief among certain Australian tribes, who seem to think that the spirit does not finally escape from the body until decomposition sets it free. It must, however, be noted that the customs of some other Fijian tribes do not fall in with this notion, as will presently appear.*

Two instances may be given here which seem to mark the gradual subsidence of this custom. At Nakasaleka (Kandávu) it is the property of the chief alone which is subject to lawless seizure on his decease. As soon as it is known that he has drawn his latest breath, the people† flock into his house, and lay violent hands on all the movables therein. To guard against this, whenever the chief is seriously ill his friends are careful to remove the most valuable articles to other houses for security. At Navatu (north coast of Navitilevu), on the fourth night after the burial of the ruling chief, a solemn *méke* (song and dance) is performed by the assembled people. There is a pause in the music, and a voice calls out "My five whale's teeth are So-and-so's." The song goes on again. Another pause, and another shout, "My ndalo plantation to So-and-so." Again a strain of music, and again a pause, "My gun to So-and-so," and so on until nearly all the property of the townsfolk has changed hands. Whatever is proclaimed as a gift to yourself you must call out a fair equivalent in return, or you will be looked upon as a disgracefully shabby fellow, and your life will be made a burden to you. Here we see the old communal idea asserting itself, but in an orderly manner, and without the violence which is elsewhere displayed.

By many tribes the burial place of their chief is kept a profound secret, lest those whom he injured during his lifetime should revenge themselves‡ by digging up, and insulting or even eating his body. In some places the dead chief is buried in his own house, and armed warriors of his mother's kin keep watch night and day over his grave. After a time his bones are taken up and carried by night to some far-away inaccessible cave in the mountains, whose position is known only to a few trustworthy men. Ladders are constructed to enable them to reach

* See "Nakelo Burial," p. 16.

† Williams tells us that at Mbua (Vanua Levu) only the kinsfolk of the dead are allowed this license.

‡ "—— should revenge themselves." Is it not possible that this may explain the fate of those who dug the grave of A'aric?

the cave, and are taken down when the bones have been deposited there. Many frightful stories are told in connection with this custom, and it is certain that not even decomposition itself avails to baulk the last revenge of cannibals if they can find the grave. The very bones of the dead chief are not secure from the revenge of those whose friends he killed during his lifetime, or whom he otherwise so exasperated by the tyrannous exercise of his power as to fill their hearts with a deadly hate. In one instance within my own knowledge, when the hiding-place was discovered, the bones were taken away, scraped, and stewed down into a horrible hell-broth—but here the narrative had better stop.

Extremely interesting traces of the former prevalence of secret burial are found among tribes who do not conceal the graves of their dead. I observed from time to time in various parts of the group certain remarkable customs with regard to the first sod turned in digging a grave; and of these customs the natives could give me no explanation other than that which is perfectly satisfactory to their own minds with regard to all practices of which they have forgotten the origin—"Our fathers did so." It was not until I became acquainted with tribes who practise secret burial, and noted the extreme care with which the surface sods were raised and set aside when the grave was dug, in order that they might be replaced with as little derangement as possible, that I came upon what seems to be the underlying idea.

Tribes, who long ago abandoned their ancient practice of concealing the grave, seem to have remembered that the sods were kept apart from the excavated soil, but to have forgotten the reason for the custom; and so they have come at length to ascribe some peculiar virtue to the first sod raised, and to do all manner of queer things with it. In some places it is laid aside until the grave has been filled up and then is kneaded into a little tower on the top of the mound. Elsewhere it is thrown in upon the corpse before the rest of the excavated earth. At Vunda, the two Ngganggáli hold it against their breasts until the body has been lowered into the grave. But the most singular custom in connection with it occurs at the burial of the Torandreketi before mentioned. When his grave is dug, the man who turns the first sod takes it up in both hands and raises it to his head. He then lifts up one foot, and resting it against the calf of his other leg, he maintains that posture until the chief is buried. The poor man may be kept thus standing for several hours, and has sometimes been unable to straighten his leg at the close of the ceremony. His friends carry him down to the waterside, bathe, and vigorously shampoo him, until the rigid muscles have recovered their elasticity.

A curious belief in connection with the burial of a chief prevails at Naitasiri, on the banks of the Wailevu, the noble river which flows down to Rewa from the mountains of Navitilevu. There the Mbouta carry the dead chief by night to his secret grave far away in the hills, and are not permitted to lay the body down until the break of day. If they reach the burial place before dawn, they must stand in silence, bearing the body on their shoulders, until the morning light begins to appear in the east, for if they lay it down "*Ena kata na nggio mai wai.*" ("The sharks will bite in the river."*)

Cave burial is common in Fiji, that is to say it is found in many parts of the group, though it is not generally practised. The people of one village may be cave-buriers, while their neighbours on either side of them, and indeed all the other tribes of their island, bury their dead in graves. The dead, and sometimes the dying, are laid in caves without any covering other than the cloth or mats in which they are wrapped. At Nakasaleka (Kandavu) there is a deep rocky chasm into which the dead are thrown headlong, but only commoners are disposed of in this manner. Chiefs are treated with greater ceremony.

In all probability the practice of cave burial was far more common in the olden times. In several places where the people bury their dead in the ordinary manner, and were in the habit of so burying them when the first missionaries arrived, there are caves which are full of skeletons. A few years ago a chief named Koroivuki of Tumbou (Lakemba), was strolling along a strip of sand left bare by the receding tide at the foot of a rocky bluff. A little dog he had with him started a wild cat and pursued it. To Koroivuki's astonishment both cat and dog suddenly vanished where a stunted tree grew out of a crevice in the rock, and though he heard the dog barking he could find no trace of it. At length, pushing aside the branches of the tree, he found that they concealed an opening whence the dog's barking sounded faintly as if it came from far away. He crawled in, and found himself within an extensive cave, which, to his horror, was full of dead men's bones. His people had buried their dead in graves from time immemorial, and none of

* There are plenty of sharks in the Wailevu, but as a general rule they are not very troublesome, probably because they can easily procure fish enough to satisfy their hunger. The natives say that the sharks used to kill many people in the olden times: that they left off their evil ways when the Lotu (Christianity) came; but that since annexation they have begun to bite again. It is quite possible that the natives may be right as to the facts, whatever we may think of their theory. In the old heathen times the refuse of cannibal feasts which was thrown into the river brought the sharks up from the sea, and since annexation a butchery has been established, which has doubtless the same effect.

chiefs are buried in large stone coffins, which are placed on the surface of the ground, a great heap of sand being raised over and around them. The burial of one of the Tui Nayau (Lakemba kings), which I myself witnessed, was conducted as follows:—

The body was laid out at full length upon fine mats, with the face uncovered. A lady of high rank sat by in a half-reclining posture with one arm thrown round the back of his head, her face and her whole attitude expressing the very extremity of woe. She was covered from head to foot with a large flowing *ngatu*, or mantle of beautifully painted native cloth. Four other ladies sat below her, two on each side, and continually fanned the corpse. Profound silence was kept. All work was suspended throughout the island, save the necessary preparations for the funeral. No lamentation was permitted. The *tangi ni vanua* (weeping of the land) was expressed by the subdued dolorous blare of *conchs*,* blown softly by young men who were seated on the projecting part of the mound on which the house was built. At night, rows of lamps made of cocoanut shells and filled with cocoanut oil were placed upon the mound, and on the gate-posts also of the fence which enclosed the king's precinct. In the meanwhile the grave was being prepared. Six slabs of white sandstone were cut smooth and flat with axes, and carefully fitted together so as to form a large sarcophagus, 7 feet long, $3\frac{1}{2}$ feet broad, and 5 feet deep. A suitable spot near the beach was cleared, and all the undergrowth and rubbish removed to a distance. Here the lower slab was placed on the ground; the side slabs and those at the ends were set up in their places; and then clean white sand was brought from the beach, and poured down until a mound was formed about 15 feet square, and somewhat higher than the coffin, which stood in the centre of the mound. The sand was kept in its place by a strong stone wall on every side. No particle of soil was allowed to mingle with the sand, and even the stones of the outer wall were carefully washed in the sea before they were set in their places. The body was rolled up in many of the finest mats, and laid at full length in the coffin; the top slab was put on as a lid, and about a foot of sand was poured upon it. The whole surface of the mound was then levelled, and covered with little blue, green, and reddish-brown pebbles, which were brought in baskets by the women.

A singular custom, called Vakandrōndrō ("flowing," or rather, "causing to flow"), is observed at Nairai, one of the islands in Central Fiji, immediately after the burial of a young unmarried chief, or a girl of high rank who died in her maidenhood. Say that it is a chief who has lately been buried. The young men

* "Conchs."—This is the custom at Tokatoka also

and the girls bathe and oil themselves, put on their best ornaments, and then gather together in a house under the charge of certain elders. The girls lie down on one side of the house, and the youths on the other. A deep sleep falls upon them. Their souls leave their bodies, and glide swiftly away with an easy *flowing* motion. Presently they see before them the spirit of the dead chief, who is making the best of his way to Naithombothombo, a projecting point of land which forms the western extremity of Vanua Levu, and whence the spirits of the dead leap into the sea on their way to Mbulu, the Fijian Hades. The young people follow in silence, and watch. They see the ghost arrive at the overhanging rock which is the "leaping-place." He pauses for awhile, gazing intently down upon the waves. The surface of the water is agitated, and lo! the spirit of a dead *marama* rises from the depths. She ascends the face of the precipice. The two spirits embrace, leap together into the sea, and are lost to the view of the beholders, who turn reluctantly away, and go back to where their bodies are lying. As soon as they return the spell is broken. They awake from their sleep, and announce the name of the lady who came from Mbulu to meet the departed chief. This is good news to his friends, for it assures them of his deliverance from the terrible Nangga-nangga, and from other dangers. But some of the sleepers do not awake. Their souls are lingering still at Naithombothombo, consumed by a vehement longing to follow the dead all the way to Mbulu. It is necessary to shout their names aloud* in order to recall them, and not without difficulty are they at length aroused. This curious dream has all the force of reality to a Fijian who has slept that sleep, and it would be hard to convince him that it is nothing more than a dream.

But perhaps the most striking of all the Fijian burial customs are those of the Nakelo tribe who live on the banks of the Wainimbokási, one of the numerous outlets by which the Wai-levu empties itself into the sea. On the death of the Tui, or king, the path through the Nakelo lands to the river boundary is weeded and swept clean. The dead chief is laid out at full length, with his narrow waistcloth carefully arranged, his club in his hand or lying across his breast, a turban on his head, and his face painted. The house is filled with people, who sit in silence and with downcast eyes. By-and-by come three old men, the elders of a clan called the Vunikalou ("source of the gods") holding fans in their hands. One of them enters the

* In fainting-fits also, and other seizures producing insensibility, the soul is supposed to have left the body. If not recalled it will betake itself to Mbulu, and so the anxious friends shout after it, bawling out the person's name at the top of their voices.

house, while the other two wait in the doorway. He flourishes his fan over the dead man's face, and calls him, saying, "Rise, sir, the chief, and let us be going. Broad day has come over the land." And the soul of the dead man rises at his call. Holding his fan horizontally at a short distance above the floor, and walking backwards, the old man conducts the spirit from the house. The other Vunikalou join him at the doorway, holding their fans in like manner about two feet above the ground, as a shelter for the spirit, who is evidently supposed to be of short stature. Thus they go along the path, followed in reverential silence by a great multitude of men, no women being allowed to join the procession. When they reach the river-bank, one of the Vunikalou climbs a tree which grows thereby, and cries with a loud voice, "*Ie Themba ! Lele mai na wanka. Lui manda mai na mua resi.*" ("Themba, bring over the canoe. Let the *resi* end be first.") This call he repeats three times ; and thereupon the people flee in all directions, and hide themselves. Themba is the Nakelo Charon, who ferries departed souls across the river. The ends of his canoe are of different woods, one being *resi*, the best of all the Fijian hardwoods, while the other is made of *ndolo*, or *uto*, which are inferior kinds. Hence when Themba hears the *resi* end called for, he knows it is a great chief who is coming, and makes his arrangements accordingly.

The Vunikalou, after summoning the ghostly ferryman, wait by the riverside until they see a wave rolling in towards the shore, which they say is caused by the approach of the invisible canoe. They aver that a blast of wind* accompanies it, and that the wave dashes its spray over the bank. When this sign appears, they avert their faces, point their fans suddenly to the river, cry aloud, "*Ni vondo, saka*" ("Go on board, sir"); and forthwith run for their lives, for no eye of living man may look upon the embarkation.

The spirit of the dead chief being thus conducted beyond his dominions, there remains his body only to be disposed of, and this is done with little ceremony. The grave is dug about hip deep, and the chief is laid therein, rolled up in mats, face to face with one of his strangled wives, or his mother if she were living at the time of his death, or better still, his grandmother, if she were to the fore. An old cocoanut is broken by a blow with a stone, being held so that the milk runs down upon his head. The meat of the nut is then eaten by the Vunikalou, the grave is filled up, and there is an end of the Tui Nakelo.

* "A blast of wind." Unless there were a dead calm, the Vunikalou would not have to wait long for a puff of wind at that part of the river.

NOTE.—The particulars given in the foregoing sketch by no means exhaust the subject. There are many other interesting burial customs besides those which are recorded in the Rev. Thomas Williams's valuable work; and they can now be ascertained with but little difficulty, for we are able now-a-days to make leisurely inquiries among many tribes who were inaccessible in Mr. Williams's day. With the exception of the bare statement of widow-strangling on page 137, and the mention of Nangga-nangga, I have carefully avoided the ground which he has so ably covered.

MAY 11TH, 1880.

A. L. LEWIS, Esq., *in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the GOVERNMENT OF NEW ZEALAND.—Results of a Census of the Colony of New Zealand, 3rd March, 1878.

From the ANTHROPOLOGICAL SOCIETY OF BERLIN.—*Zeitschrift für Ethnologie*, 1879, Heft. 6; 1880, Heft. 1.

From the ACADEMY OF SCIENCES, KRACOW.—*Rozprawy i Sprawozdania z Posiedzeń wydziału Matematyczno-Przyrodniczego Akademii Umiejętności*. Tom. VI.

— *Lud*—Serya XII.

— *Monuments Préhistoriques de l'ancienne Pologne*. 1re Série, Prusse Royale.

From the TRUSTEES OF THE ASTOR LIBRARY.—Thirty-first Annual Report, 1879.

From the SOCIETY.—*Journal of the Society of Arts*, Nos. 1432, 1433.

— *Proceedings of the Asiatic Society of Bengal*, Nos. 5, 6, 10, 1879.

— *Journal of the Royal Asiatic Society*, Vol. XII, Part 2.

— *Proceedings of the Royal Geographical Society*, Vol. II, No. 5.

— *Proceedings of the Royal Society*, No. 202.

From the SOCIETY.—Bulletin de la Société Impériale des Naturalistes de Moscou, 1879, No. 3.

From the INSTITUTION.—Journal of the Royal United Service Institution, No. 104.

From the ASSOCIATION.—Proceedings of the Geologists' Association. Vol. VI, Nos. 5, 6.

From the EDITOR.—"Nature," Nos. 548, 549.

— Revue Scientifique, Nos. 44, 45.

The Director read a paper entitled "Notes on the Western Regions." Translated from the "Tseên Han Shoo," Book xcvi, Part 1. By A. Wylie, Esq.*

The following paper was read:—

FLINT IMPLEMENTS *from the VALLEY of the BANN.*

By W. J. KNOWLES.

I HAVE obtained at different times within the last three or four years, from the banks of the River Bann, a series of flint weapons or tools, which differ considerably in type from the ordinary flint implements of the North of Ireland. They have been chiefly found on the left bank near the town of Portglenone, in a deposit of diatomaceous clay which underlies the peat and is about five feet in thickness. The banks of the river are five feet higher than the winter level of the water, and consist of a small covering of soil, then the diatomaceous earth, and below that a clayey peat. At a short distance from the river the clay passes under a covering of peat of the ordinary kind. The clay is suitable for brickmaking, and every year during the summer months a considerable quantity of it is dug up for that purpose, and it is while this operation is going on that the implements are found.

The first flint tools of the kind I am referring to which came into my possession were purchased from a person who goes through the country districts and buys from labourers and farmers such objects of antiquity as they may find when turning over the soil, but during the last two years I have gone at various times in the brickmaking season and purchased the objects direct from the labourers.

The implements are of two types. The kind which is most numerous appears to have been made by splitting up nodules into halves and quarters, which are afterwards formed into pointed implements by a process of coarse chipping, but as a general rule they do not seem to be made from anything resem-

* See page 20 in the present volume.

bling a flake. The implements of this kind number about fifty, show no trace of polishing, and all agree in having a cutting point and thick base for holding in the hand. They are as a general rule long, narrow, and rather of a cylindrical form than flat and broad. Some of the largest are 7 or 8 inches long, and from 2 to 3 inches broad at the base, but a few are broad and flat. There is one very fine implement in the series which is flat, and only worked on one side, but otherwise it has a likeness to the flat triangular palaeolithic implements. It is 6 inches long, nearly 4 broad at the base, and $1\frac{1}{2}$ inches thick, while the stout base still shows the weathered surface of the nodule from which it was made. I have examined several private collections and have not found any implements that agree in character with those I have described, and very few, perhaps not more than three or four, that would have a slight likeness to them. I have also inquired of the man from whom I first bought objects of this kind, as to whether he may have found implements of this type in any other district, but he assures me he has not, and that the kind referred to were all got in the Valley of the Bann, when the brick was being made. I regularly buy flint implements from another dealer who confines his walks in search of antiquities to the eastern half of county Antrim, away from the direction of the Bann altogether, and on showing him this series of implements he declared they were perfectly new to him, and said he had never got similar implements though he had been collecting for many years. This was confirmed by my own labours as far as my experience went in collecting, from which I conclude that implements of this kind had a special connection with rivers.

Dr. Evans in "Stone Implements and Ornaments of Great Britain," mentions that he has found implements of "tongue shaped" form in Ireland which were obtained from the shores of Lough Neagh, at Toome, and which I believe to be similar in character to some of those described by me. I have also myself picked up at Toome an implement of the same type as those from the diatomaceous deposit, and I was present at an excursion to that place of the Ballymena Naturalists' Field Club about three years ago, when one or two specimens of the same type were procured by the members on the shores of Lough Neagh, where the Bann emerges from it. But Toome is only three or four miles farther up the Bann than the place I have mentioned, and as the diatomaceous deposit is found there also, I am of opinion that those implements found by Dr. Evans, myself, and others, on the shores of Lough Neagh, were derived from the diatomaceous clay by the process of denudation.

The second series of objects may be described as large flakes

of triangular outline, with sharp point and central rib down the back, but having the base wrought into a tang. In the catalogue of the Royal Irish Academy this form of flake is represented by Fig. 3; the tang, as far as I am able to interpret what is said about it, being looked on as the first step in the process of development into arrow and spear heads, but as I can also refer nearly the whole of the tanged flakes in my possession to the diatomaceous deposit on the banks of the Bann, I am rather inclined to believe that instead of being a step in the way towards greater perfection, and as pointing out the process of development, they were perfect implements of their kind, and like those of the first series, manufactured specially for use about rivers.

I have also got from the same deposit a very few—three or four—polished stone celts, and though there is something peculiar about them, as, for instance, the edge being more pointed than usual, and not of the ordinary semi-circular form, yet I am uncertain whether all may be of the same age or not. Previous to making the brick, the clay is dug out and cast into a heap, which is afterwards minced up with spades into small pieces, and it is frequently during the mincing operation that the implements are found. It is therefore not certain whether the polished and unpolished implements may have been found together in close association, or the one at the top and the other at the bottom. Any of the forms of implement may, if dropped into the water, have sunk more or less into the deposit below, but I have been assured by the workmen that some of the large unpolished implements were taken out quite close to the bottom from under 5 feet of clay.

I cannot say what the age of these objects may be as I have not been able to obtain any animal remains. If we are to accept as an acknowledged doctrine that the remains of the Irish Elk are only to be found in the marly deposit below the peat, then we may draw some sort of conclusion from the fact that these implements have been found in a bed occupying a similar position; but whatever their age may be they are none the less interesting, for if of neolithic age the fact of their being found chiefly in a river valley, and not generally where other flint implements are found in abundance, would lead us to the conclusion I have already mentioned, that they were manufactured chiefly for use about rivers; and this fact may suggest a reason for the large triangular flints of palæolithic age being chiefly confined to the old river gravels, while the implements from the caves are so different in type. These implements of the pointed kind might therefore in both cases be not for general use, but chiefly for the river valleys. They may

possibly have formed weapons for attacking the larger animals when they came down to drink, but the theory that they were used for breaking holes in ice, I think is also a very likely one. If so it would follow that the climate of the north of Ireland when these implements were used was much colder than it is at present. I believe the tanged flakes were used mounted possibly for spearing fish, as suggested by Dr. Evans, when referring to similar implements from Lough Neagh in "*Archæologia*," vol. xli, p. 401. But whatever the use of either kind may have been there is no doubt that they are common implements in the deposit of diatomaceous clay on the banks of the Bann, and uncommon, if found at all, in other parts of the north of Ireland where flint implements are common.

The following communications were also read:—

W. D. GOOCH, Esq., entitled "*Notes on the occurrence of Stone Implements in South Russia*;" "*Jade Implements in Switzerland*," by HODDER M. WESTROPP, Esq.; "*Notes on the Discovery of Prehistoric Remains in Central Russia*," by C. H. E. CARMICHAEL, Esq., M.R.S.L. Extracts from these will appear in a future number of the *Journal*.

On the CRANIAL CHARACTERS of the NATIVES of the FIJI ISLANDS.

By WILLIAM HENRY FLOWER, LL.D., F.R.S., P.Z.S.,
V.P. Anthropol. Inst., etc.*

THE Viti, or as it is now more commonly called, Fiji Archipelago, consists of two large, and a considerable number (estimated at 250) of small islands, of which about 80 are inhabited. The latter lie mostly to the east of the main islands, and nearer to the Tongan and Samoan groups. The geographical situation of the Archipelago gives it its peculiar ethnological interest, as it is placed close to the line which forms the boundary between the portions of the ocean inhabited mainly by one or other of the two great and very distinct races of the Pacific, the Melanesian and the Polynesian, using the former term for all the dark-skinned, frizzly-haired, dolichocephalic people of the Western Pacific, and the latter for the light-brown, straight-haired, brachycephalic or sub-brachycephalic race, called Malayo-Polynesian by the older writers, and for which Messrs. Keane and Whitmee have lately proposed the name of Sawaiori.

In accordance with this geographical position, as well as from observations based upon their physical characters and social condition, the Fijians have generally been considered to be a mixed or mongrel people, containing elements derived from both

* Read June 22nd, 1880.

of these essentially different races. Thus Hale says: "From the description which has been given of the natives of the Fiji group it is evident that they cannot properly be ranked with either of the two neighbouring races, although they approach nearest to that which inhabits the islands to the west of them. In colour, they are neither yellow nor black, but a medium of the two, a sort of reddish-brown. Their hair is neither woolly nor straight, but long and frizzled. In form and feature they hold the same undecided position, and however it may be in reality, in appearance they cannot be better described than as a mulatto tribe, such as would be produced by a union of Melanesians and Polynesians."*

It must, however, be noted that this description of the American ethnographer, as well as nearly all our other knowledge of the physical characters of the Fijians, is derived from natives of the smaller islands, or of the eastern coast of the principal island, Viti Levu, who have for a long time maintained an intercourse, sometimes friendly and commercial, and at other times hostile, with the neighbouring Tongan group inhabited by a pure Polynesian race, while hitherto scientific observations upon the inhabitants of the interior of either of what may be called the continental islands of the group, where the primitive characters of the people may be expected to be met with in their greatest purity, have been extremely scanty. This applies with scarcely any reserve to the osteological characters, as (with one exception) all the specimens of crania of the Fiji islanders described up to the present time have been brought from some of the smaller islands.

The precise origin of the one which was for many years the sole representative of the Fijian race in European collections, that presented to the Museum of the Royal College of Surgeons of England by Dr. Hobson, the figure of which in Martin's "Natural History of Quadrupeds, etc." (1840), has been reproduced in several anthropological works, is certainly unknown, but as it was obtained from a man who died in the hospital at Hobart Town, probably one of the crew of a whaling ship, and as its essential characters differ totally from those about to be described, it is tolerably certain that it could not have been from the interior of either of the large islands.

Dr. J. W. Spengelf has described and figured eight crania from the Godeffroy and other Museums in Germany, not one of which is known with any certainty to have been that of a native of

* "United States Exploring Expedition under Wilkes (1838-42)" ('Ethnography and Philology,' by Horatio Hale (1846), p. 174).

† "Beitrage zur Kenntniss der Fidshi-Insulaner" ("Journal des Museum Godeffroy," Band i. Heft iv, 1873, p. 239).

either of the main islands. The same may be said of the ten specimens in the Barnard Davis collection.*

In the latest exhaustive summary of our knowledge of the cranial characters of the Melanesian people, that given in the "*Crania Ethnica* of De Quatrefages and Hamy" (Livraison vii, p. 288), fifteen skulls are mentioned from the small islands, probably presenting more or less of Polynesian mixture, and one only from the interior of Viti Levu, brought by M. Filhol. This is briefly described, and is said to present in the highest degree the characters of the Papoua (Melanesian) race.

The great interest of the collection now before us lies in the fact that it contains a series of sixteen crania, of both sexes, and various ages, of Kai Colos or natives of the mountainous regions of the interior of the large island of Viti Levu. These were obtained in 1876 by Baron Anatole von Hügel, to whose promised work on the Islands and their inhabitants all geographers and ethnologists are looking forward with great interest.† With these I am able to compare a series of thirteen, seven being those of adults and six of children, from the east coast of Viti Levu, or islands, such as Ovalau, situated near to the coast. These are partly from Baron von Hügel's collection, partly from that of Dr. Barnard Davis, but mainly from a collection made by Mr. Boyd in 1879, and acquired for the Museum through the liberality of Mr. Luther Holden, President of the College. A third series, consisting of seven crania, partly from the Von Hügel and partly from the Barnard Davis collection, is derived from Vanua Balavu, one of the Lau, Eastward or Windward Islands, situated about 150 miles east of Viti Levu, and nearer to the Tongan group.

The skulls of the Kai Colos, or mountaineers of the interior of Viti Levu, being by far the most important series, will be described first. Of these, the greater number, amounting to fourteen, were obtained by Baron von Hügel in August 1876, from a cave formerly used as a burial place by the Ngalmari tribe, at Wakuku, on the Siga Toka river, in the Nandronga district, which lies towards the south-western end of the island. They form a very representative series, as far as age and sex are concerned. Eleven are perfectly adult. In one (No. 1136, Osteol. Catalogue), all the permanent teeth have been acquired, including the third molars, but the basal suture is not closed. In another, all the permanent teeth are in place except the last

* "*Thesaurus Craniorum*" (1867), p. 314, and Supplement to the same (1875), p. 74.

† Baron von Hügel's entire craniological collection, consisting of thirty seven skulls of natives of various islands of the Western Pacific, was purchased in 1879 by Mr. Erasmus Wilson, F.R.S. and presented by him to the College.

molars; and one is that of a young child with the milk teeth only in place. These three are not included in the measurements from which the averages are derived. Of the adults, several have the appearance of considerable age; in two the whole of the teeth have been lost during life, and the alveolar walls absorbed. In most, the ordinary characters by which the sexes of skulls are distinguished are well marked, but in two there is some ambiguity, but placing these with the sex which on the whole they most resemble, I have classed six as males and five as females.

None of them present any signs of having died other than a peaceful death, or of having been injured in any way afterwards, and this fact, with that of several having considerably outlived the vigour of manhood, as shown by consolidation of sutures and loss of teeth, affords no corroboration of the accounts of the excessive ferocity and cannibalism ascribed to these people.*

The two other skulls of Kai Colos, both adult males, are from Voresika, in the Na Drau district, and bear different evidence of the native character, having both been broken by blows from clubs in a fray with members of a neighbouring tribe.

Neither these nor any other of the Fiji crania bear any certain evidence of having been designedly subjected to any process of artificial deformation, although one (No. 1130) is unsymmetrically distorted in the occipital region, being flattened on the right side.

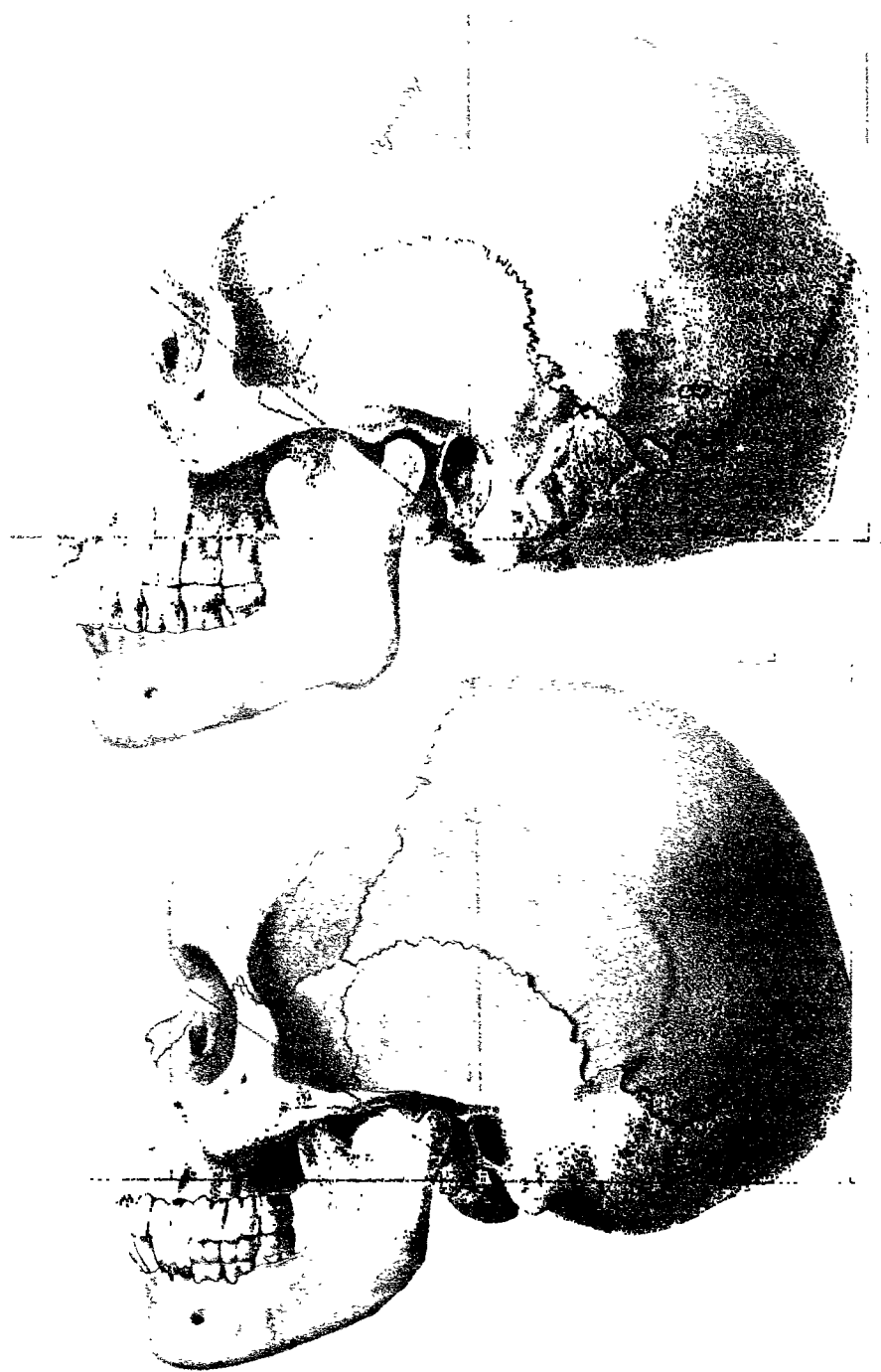
The crania of the Ngalimari will be first described, as they form a single homogeneous series. Nothing can be more striking than their wonderful similarity in all essential characters; this is even more marked than in the series of crania of the Andamanese, the subjects of a previous memoir.† In size there is some difference, but it would be almost impossible to find any equal number of human skulls presenting so little variation in general conformation, except such as is due to sex and age.

As before mentioned, with two exceptions, the characteristic distinguishing signs of the different sexes are strongly marked, the males being known by their superior size, the comparative thickness and roughness of their walls, and the greatly developed glabella, supra-orbital ridges, supra-mastoid ridges, and mastoid processes.

Taken all together, they may be classed as large skulls, indicating a people probably above the average stature, and of considerable muscular development. In this respect, however,

* It is possible that they may have been victims of the epidemic of measles which committed such havoc among the inhabitants of the island immediately after our annexation in 1874.

† See "Journal of the Anthropological Institute," November, 1879, vol. ix, p. 108.



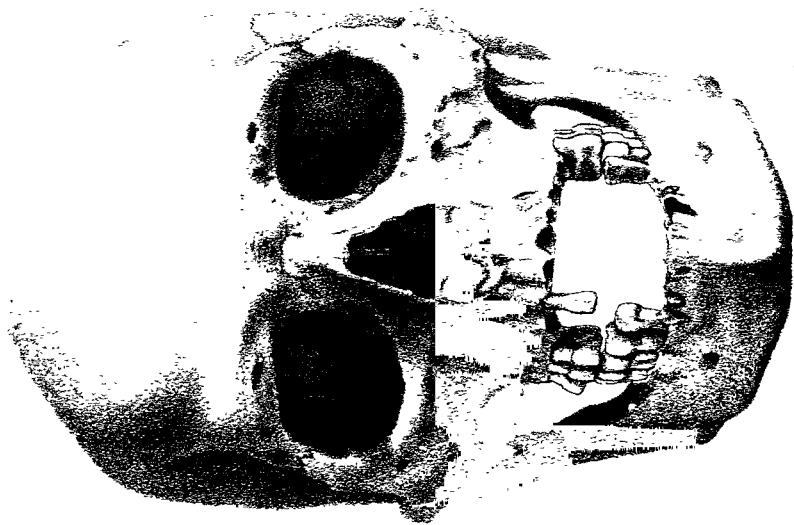
CRANIA OF FIJIANS 1

Fig. 2

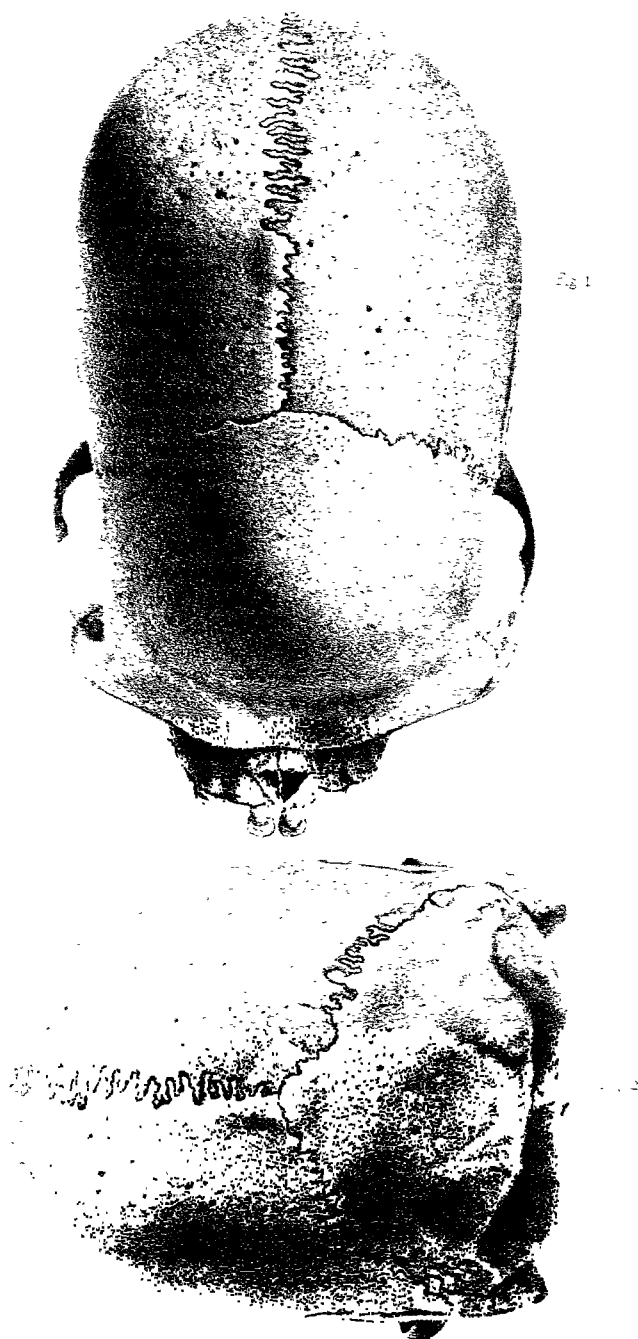


H. H. H. H.

Fig. 1



CRANIA OF FIJIANS. 3



there is a considerable disparity between the sexes. The average horizontal circumference of the six males is 534 millimeters, that of the five females 501. The average vertical transverse circumference of the males is 434, of the females 412 millimeters. The same dimensions of the Andamanese were 480, 462, 410, and 395 millimeters.

The average cranial capacity of the six males is 1504 cubic centimeters, one being as high as 1660. The average capacity of the females is 1327, giving a ratio between the sexes of 100 to 88. This, owing to the insufficiency of the number of the specimens, is only an approximation, but it does not differ greatly from that found in other races.* The general average is very much the same as that of 138 Europeans of various nations,† and considerably above that of any other of the frizzly haired races, except the Kaffirs. It exceeds that of the Australians in the ratio of 100 to 87.

In general form all the crania belong to the most pronounced type of the class called by Dr. Barnard Davis *hypsistenocephalic*, characterised by their length, height, and laterally compressed wall-like sides. The *norma occipitalis* (Plate XIV, fig. 2) presents a high pentagon, the sides of which are nearly vertical, the maximum transverse diameter, usually situated near the squamosal suture, being rarely greater, and sometimes even less than the diameter between the supra-mastoid ridges.

The latitudinal or cephalic index is remarkably low, being less than 70 in every one of the series, and in one case (No. 1126) as low as 62.9,‡ calculated on the ophryo-occipital length, or 61.9, if calculated on the glabello-occipital length, the plan so frequently adopted by anthropologists on the continent. This is the lowest index of any normal cranium in the collection, being very slightly below that of a skull of unknown origin, described by Prof. Huxley,§ which so closely resembles in all important characters those now under consideration, that it might easily have been taken for one of the series. The mean latitudinal index of the six males is 65.5, that of the five females 66.5, so that 66 may be taken as representing the entire series, a far lower mean index than has hitherto been found in any race.

* See "Journal of the Anthropological Institute," November, 1879, vol. ix, p. 113.

† "Catalogue of Osteology of Vertebrate Animals. Mus. Roy. Col. Surgeons," Part, i, 1879, p. 254.

‡ In the catalogue the index of this cranium is given as 61.9, the breadth being 120 millimeters. But this is the maximum parietal breadth only. The maximum breadth, taken according to the Paris instructions, which I shall adopt in future, being in this case (alone among the crania of the series) situated on the squamosals and is 122 millimeters, giving the index cited above.

§ "On two widely contrasted Forms of the Human Cranium" ("Journal of Anatomy and Physiology," vol. i, 1867, p. 60).

The Fijian mountaineers, therefore, if this series may be taken as a fair representation of the whole, are the most dolichocephalic, or more properly *stenocephalic*, people in the world.

Are they also to be regarded as remarkable for their height? Following the French school in taking the basio-bregmatic line as the most convenient measurement of altitude, we find an average of 142·7 millimeters for the males, and 137·2 for the females. This very considerably exceeds the maximum breadth in every case, and gives the average ratio of height as compared to breadth as 111 to 100. In the Andamanese, on the other hand, the height always falls short of the breadth. But these relations may depend as much upon variations of the breadth as of the height, and show nothing absolutely about the latter. In the same way the altitudinal index obtained by the usual method of comparing the height with the total length of the cranium is also fallacious, for in long skulls the height must appear less than in short ones. Thus the Andamanese by this test would appear more deserving of the epithet "lofty" than the Fijians, their altitudinal index being 77·9, while that of the latter is only 74·1, but this arises from the very short antero-posterior diameter of the former compared with the latter. A more just comparison may perhaps be made by taking the basio-nasal length as the standard. This being reckoned as 100, the average height in the Fijian is 138, in the Andamanese 136, in 25 English crania 132, in 17 Eskimo 133. More extended comparisons on this basis are desirable, but the subject will be referred to again before the conclusion of the memoir.

The contour of the roof of the cranium as seen in the *norma lateralis* (Plate XII), shows a fairly developed and rounded frontal region, passing into a very regular arched line, the highest point of which is situated rather behind the bregma, and continued into an occipital region prolonged considerably behind the external auditory meatus. Narrowness from side to side is the characteristic of every region of the cranium; even the parietal eminences form but slight projections upon the general evenness of the lateral walls (*see* Pl. XIV, fig. 1). The anterior and upper region of the parietal bones is flattened, giving an angular or roof-shape to the upper part of the skull, and there is generally a very slight diminution of convexity in the region of the obelion; but there are none of those marked and regular depressions on the surface frequently seen in Tasmanian and other Melanesian crania. Generally speaking, the surface of the upper part of the cranium is smooth and even, though in the males the temporal ridges are distinctly visible throughout their course, and the mastoid processes are large and

rough on the surface, and the occipital ridges and inion strong and rugged. In the females the latter only form smooth rounded eminences.

The sutures are rather faintly marked in most of the crania, and generally simple in character. In four of the older skulls, partial consolidation has taken place throughout the principal sutures. One only is metopic, No. 1102, a female, but in common with the other sutures the frontal is nearly obliterated. Wormian bones in the lambdoid suture are absent in four of the crania, and in the others generally few and simple. Union of the squamosal with the frontal by means of a *processus frontalis* occurs in both sides of one cranium, and on one side in another. In all the others, the distance between these bones is very small, in no case exceeding a centimeter. An epipteric bone occurs in one case only.

As might be supposed, every one of the adult skulls is strongly phænozygous.

The well-rounded, and in some cases rather prominent though narrow forehead, ends below in a strongly marked brow-ridge, overhanging the root of the nose and especially the orbits. This is of course more pronounced in the males than the females, but is present in all, including the children, and is one of the most marked characteristics of the skulls. In most of the males the glabella is somewhat sunken between the supra-orbital ridges, and there is a depression above separating it from the forehead, but in Nos. 1128 and 1130, as well as in the females, the contour of the forehead passes almost insensibly into the glabella. The exact amount of the projection of this eminence from the forehead is seen by comparing the ophryo-occipital with the glabello-occipital length (*see* Table of Measurements). In the males it averages 2·6 millimeters, being only 1 millimeter in the two crania just mentioned, but as much as 3 or even 4 in the others, while in the females the difference is scarcely perceptible, averaging but $\frac{2}{10}$ of a millimeter.

The whole face is remarkably short from above downwards, compared with the European, or with the true Polynesian races. This is due to diminution of the height, both of the nasal aperture and of the subnasal portion of the face.

The orbits show a marked contrast in form and character in the two sexes. In the males they are oblong, with greatly thickened margins, with an average index of 84·2. In the females they are more nearly square, with thin and sharply defined edges, having an index of 90·7. In the children their form is more rounded, and in the youngest, an infant with the milk teeth only, the height is actually greater than the width, the index being 103·3. The series thus exemplifies in an extremely

striking, almost exaggerated manner, the usual variations of the orbital form, according to sex and age, which were demonstrated by Broca in his interesting memoir on the orbital index.

The nose is one of the most important of the features as a characteristic of race, and its form is very accurately indicated in its bony framework. There is a striking similarity in this region in the whole series. The aperture is large, being high, owing to the shortness of the nasal bones, and also of great width. The average nasal index of both sexes is 56.6, very much the same as that of the Australians and the African negroes in the Museum. With one exception (No. 1127, the index of which is 50.0) all belong to the platyrrhine group (index above 53). The nasal bones are small, narrow at the upper end and widening below, not flattened as in African negroes, but more or less laterally compressed, and meeting at a rounded angle at the median dorsal ridge. The profile of this ridge is hollowed below the naso-frontal suture (though not so deeply as in the Australian), and then curves rather abruptly forwards, and turns slightly downwards at the tip. A nose formed upon this bony sub-structure would evidently be of considerable size, with broad alæ and open nostrils, would be sharply marked off from the forehead by a groove, and have a prominent bridge, placed high up on the dorsum, as represented in many descriptions and drawings of individuals of the Melanesian race.

The form of the lower margin of the nasal aperture is generally one of the best distinctive characters between the white and the black races of men. All the skulls of this series present the distinguishing form of the latter, *i.e.*, effacement of the sharp, elevated border, and more or less insensible passage from the floor of the nasal chamber to the anterior surface of the alveolar process; part of the floor of the chamber, concealed in the European by the border just mentioned, being visible externally in a front view of the face. Concurrently with this formation of the lower margin of the nostrils, the nasal spine is always feebly developed, usually No. 2 of Broca's scale, or smaller; never equalling No. 3.

The average naso-malar angle is 135.6, ranging between 130° and 139°, about equal, therefore, to that of the English, and showing no Mongolian affinities.*

* I find that for greater precision it is advisable to modify the definition of this angle, given in the paper on the Andamanese (*J. A. Inst.* vol. ix. p. 117.) Instead of "the middle of the outer margin of the orbits," a spot immediately beneath the fronto-malar suture is preferable to rest the limbs of the goniometer upon, the angle being then almost exactly in the horizontal plane of the cranium. The results obtained this way differ somewhat from those previously given. The average in 106 crania of natives of the British Islands is 135.2. I hope shortly to have made a sufficient number of observations to test fully the value of this angle as a race character.

CRANIAL MEASUREMENTS OF NATIVES OF THE INTERIOR OF VITI LEVU.

[To face page 160.

No. in Catalogue.	Sex.	1 Capacity.	2 Length (ophryo-occipital).	2a Length (glabella-occipital).	3 Height (basi-bregmatic).	Transverse diameters of cranium.					9 Index of breadth.	10 Index of height.	Horizontal circumference.		13 Vertical transverse circumference.	Transverse arcs.				Longitudinal arcs.			Of foramen magnum.	Projections (visual axis being horizontal).					Diameters of face	34 Height of Malar.	35 Height of Alveolus.	36 Auricle-orbital length.	Of Orbit.			Of Nasal Aperture.			Of Maxilla.			Angles.			MANDIBLE.															
						4 Minimum frontal.	5 Maximum frontal.	6 Occipital.	7 Bimetricular.	8 Maximum.			11 Perimetricular.	12 Total.		14 Frontal.	15 Bregmatic.	16 Parietal.	17 Occipital.	18 Frontal.	19 Parietal.	20 Occipital.		21 Length.	22 Width.	23 Facial.	24 Anterior nasal.	25 Posterior.					26 Total.	27 Baso-nasal length.	28 Baso-alveolar length.	29 Gustatory index.	30 Bizozygomatic.	31 Bzygal.	32 Inter-orbital.	33 Height of Face.	37 Width.	38 Height.	39 Index.	40 Height.	41 Width.	42 Index.	43 Length.	44 Width.	45 Index.	46 Facial (ophry. alv. auric.).	47 Nasion-Malar.	48 Baso-alv.	49 Baso-ant. len.	50 Bzygonas.	51 Symphysial.	52 Molar.	53 Coronoid.	54 Gonio-symphysial length.	55 Height.	56 Ant. post. breadth.
Ngalmari tribe. Nandronga district. Viti Levu.																																																												
1125	♂	1540	197	201	146	96	107	110	117	129	65.5	74.1	236	532	430	285	295	318	275	126	145	130	35	25	20	90	108	213	110	110	100.0	144	121	25	50	27	17	70	40	34	55.0	46	25	60.9	—	—	—	66	1.2	21	123	102	24	—	72	99	67	29	110	
1126	♂	1550	194	198	141	95	106	105	112	122	62.9	72.7	235	521	423	286	300	315	275	135	146	122	34	27	18	85	103	206	102	105	102.9	134	118	25	50	26	16	69	37	32	56.5	47	25	53.2	—	—	—	70	1.5	17	121	95	23	25	64	96	63	27	119	
1127	♂	1530	193	196	143	99	112	110	124	134	69.4	74.1	237	530	435	255	300	320	272	130	133	132	36	22	25	83	105	214	108	109	100.9	140	123	27	57	25	17	70	42	36	55.7	54	27	50.0	61	67	110	—	—	—	—	—	—	—	—	—	—	—		
1128	♂	1660	203	204	148	97	116	120	120	134	66.0	72.9	254	546	463	295	310	330	285	152	142	133	37	27	23	81	117	221	93	104	105.1	139	115	25	55	24	16	67	40	33	52.5	52	28	53.5	60	69	112	70	1.7	25	120	100	24	60	100	54	81	135		
1129	♂	1370	194	197	140	97	112	104	113	127	65.5	72.2	244	526	428	292	300	300	275	133	144	117	33	28	—	89	100	—	102	—	—	125	119	27	52	26	—	70	39	32	52.0	45	29	60.4	50	67	113	—	—	—	—	—	—	—	—	—	—	—		
1130	♂	1375	190	191	138	95	107	111	111	125	65.8	72.6	236	515	425	293	300	316	275	133	133	132	30	28	—	93	95	—	103	—	—	126	116	24	—	27	—	67	33	32	54.2	44	26	59.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Average...	♂	1504	195.2	197.8	142.7	97.0	110.0	110.0	116.1	128.1	65.6	73.1	240.3	533.8	434.0	289.3	300.6	316.5	276.6	134.8	143.5	127.7	34.2	27.8	—	86.8	103.5	—	104.0	107.0	102.9	136.8	119.2	26.2	53.4	27.5	—	68.8	39.3	33.2	54.5	48.5	27.1	55.9	—	—	—	67.7	1.4.8	25.5	—	—	—	—	—	—	—	—	—	—
Na Drau district. Viti Levu.																																																												
1131	♀	1350	186	186	140	94	105	108	112	123	66.1	75.3	223	505	420	280	296	317	263	130	147	116	34	27	—	84	97	—	99	—	—	125	106	23	—	22	—	66	38	34	59.5	46	28	60.9	—	—	—	—	1.5	25	—	—	—	—	—	—	—	—	—	—
1132	♀	1300	181	182	142	97	106	106	113	126	69.6	78.5	230	502	420	282	290	304	248	125	136	110	34	25	15	90	86	191	104	105	101.0	127	111	25	79	21	13	70	38	33	56.5	48	28	58.3	—	—	—	69	1.4	23	—	—	—	—	—	—	—	—	—	—
1133	♀	1380	185	185	137	93	109	101	114	124	67.0	74.1	233	502	410	280	292	306	252	132	142	115	34	25	18	86	94	195	96	103	107.3	123	104	25	77	19	15	66	36	31	64.4	44	24	54.5	53	60	104	71	1.4	22	112	89	25	25	53	85	58	35	116	
1134	♀	1355	189	189	136	97	106	103	108	123	65.1	72.0	230	508	410	282	290	312	257	134	141	121	34	27	15	82	96	193	95	98	103.2	124	112	23	80	22	17	65	35	32	61.4	44	25	56.8	54	64	115	70	1.5	22	—	—	—	—	—	—	—	—	—	—
1135	♀	1250	181	182	131	89	102	102	106	117	64.6	72.4	215	488	398	260	275	292	200	120	135	112	34	24	17	87	92	166	97	105	105.2	121	106	21	84	21	18	67	25	32	61.4	45	25	55.5	55	61	105	63	1.5	27	119	87	24	25	54	80	57	36	121	
Average...	♀	1327	184.4	184.6	137.2	94.0	106.0	104.0	110.6	122.6	66.5	74.4	226.2	501.0	411.6	276.8	288.6	306.2	256.0	128.2	140.2	114.8	34	26.2	—	87.8	93.0	—	98.2	102.7	104.6	124.0	107.8	23.4	79.5	21.0	15.7	66.5	36.4	33.0	60.7	48.4	26.0	57.2	—	—	—	68.2	1.5	25.5	—	—	—	—	—	—	—	—	—	—
1139																																																												
1139	♂	1445	188	190	145	101	115	107	115	125	68.1	77.1	239	518	435	292	305	310	266	135	135	120	31	28	24	81	100	205	104	106	101.9	133	120	27	85	23	25	70	41	35	57.4	50	29	58.0	—	—	—	—	—	—	1.4	135	3	26	72	94	68	32	126	
1140	♂	1500	191	193	142	93	113	106	114	128	67.0	74.3	236	520	435	293	305	315	282	134	143	120	35	27	—	82	103	—	100	—	—	130	112	26	—	27	—	69	39	33	54.6	49	27	55.1	—	—	—	—	—	—	119	93	31	24	66	89	65	35	128	

The malar bones are somewhat narrow from above downwards, and retreating laterally, but not to so great an extent as in the Tasmanians and Australians. A depression in the under surface of the malar process of the maxilla or "maxillo-malar notch" as it may be called, depending upon the development of the tuberosity and inferior edge of the malar bone, which is rarely found in Tasmanians and Australians, and indeed in many other races, as the Eskimo, is generally present in the Fijians, especially in the strongly-built males, though in most it is but slightly marked. The canine fossa is usually deep.

The form of the palate is rather intermediate between the parabolic and the hypsiloid, but often more inclined to the latter form. It is rarely V-shaped or hyperbolic, the form so common in the Andamanese. The index given by the measurement recommended in the French instructions is not very satisfactory, as the "points de repère," for these measurements, both length and width, are rather indefinite. The length terminates posteriorly at the palatine spine, a very variable point, sometimes greatly and sometimes but little developed, and giving no exact indication of the real length of the bony framework of the mouth, and, moreover, very often broken. The width also of the palate is very difficult to determine precisely by measurement of the internal face of the alveolar arch. I should therefore suggest using the external dimensions of this arch. The length should be taken from the alveolar point in front to the middle of a line drawn across the hinder borders of the maxillary bones (the "maxillary tuberosities" of human anatomy). This is easily measured by placing a card or a thin piece of metal across the back of the mouth, resting on each side in the groove between the tuberosity and the pterygoids. The width is best taken between the outer borders of the alveolar arch immediately above the middle of the second molar tooth. These may be called the maxillary length and width, and the index obtained from them called the maxillary index.

The following examples will show the value of this index in giving an idea of the general form of the maxillary bones. In the gorilla it is 69. In a Tasmanian, which presents in a striking degree the hypsiloid form approaching that of the Anthropoids, it is 106; in an Australian of similar form, 107. The Eskimo, which present the greatest contrast to the Australians in the form of the alveolar arch, have an index (average of 4) of 124. Ten English skulls give an average of 117, and the indices of the six Fijians whose alveolar arches are sufficiently perfect to admit of measurement, vary between 105 and 118, giving an average of 111. Their position in this respect therefore appears to be between the European and the Australian.

There now remains the very important question of the position of the upper jaw with regard to the cranium, *gnathism*, as it may be called, the variations of which in the human subject depend, as Topinard has shown, mainly upon the form of the portion of the jaw below the nasal spine; in fact, upon the degree in which the anterior portion of the alveolar process of the maxilla (pre-maxilla being of course included in this term when speaking of the human jaw) recedes towards the base of the cranium, or projects forwards. Although in a refined and perfect system of craniometry it may be desirable to investigate the relations of the face, independently of its sub-nasal position, to the cranium and to separate the different elements which produce the condition generally known as prognathism, it is clear that in estimating this condition as a whole, the alveolar point is the most important for consideration, and it is the position of this point in relation to some fixed line in the cranium which has to be determined.

The best and most convenient base line of the cranium appears to me that which Huxley calls the "cranio-facial" axis, or the basio-nasal line, joining the basion (B, Plate XII) and the nasion (N); and, practically, gnathism depends upon the relation of the alveolar point (A) to this line. If any line or axis of the cranium ending in front above the nasion is used, a new element is introduced—that of the form of the frontal bone, which should be kept quite distinct, for although required in estimating the whole "facial angle," it has nothing to do with "gnathism" as was clearly shown in Professor Huxley's paper "On two widely contrasted Forms of the Human Cranium."* In what may be called the average or generalised condition of the human skull the points N (nasion), B (basion) and A (alveolar point), form a triangle of which the two sides BN and BA are equal. Such skulls may be called mesognathous. Prognathism and orthognathism consist in the advance or recession of the point A, which may be due to one of two causes, or, as is more often the case, to both combined: 1. A rotation, or perhaps rather sliding forwards or backwards of the maxillary and adjacent bones, "a shifting forwards of the centre of the palate," as Huxley expresses it. 2. Variation in the size of the maxilla itself; macrognathism being generally found in the macrodont, or large-toothed races. In comparing the skull of a gorilla with that of a man, it will be readily seen that both these causes combine to make the great difference between the two crania, strikingly seen in the immense increase of the length of the line BA over BN in the former. The amount contributed by each factor can easily be estimated by dividing the line BA at the point where it crosses the hinder

* "Journal of Anatomy and Physiology," vol. i, p. 75, 1867.

margin of the maxilla, when it will be seen that both the maxillary length and the space between the maxilla and the basion are increased. The same will be found in the black races of men, though in a far less degree. But, by whatever cause produced, the length of the line BA compared with that of BN expresses the measure of *gnathism* of the skull quite as accurately as any of the other methods by angles or indices which have been proposed, and its extreme simplicity and facility of application gives it great advantages. It fails certainly in cases of platybasic deformity, when the elevation of the basion causes it to approach nearer to the nasion; but such cases are rare, and can readily be detected by the eye, and then the method must be exchanged for some other. It fails also, but in common with all other methods, when loss of incisor teeth or other cause has led to the destruction of the alveolar point.

One other source of fallacy, which applies equally to this method of estimating gnathism, as to the angular one, in which A is taken as the apex of the angle measured (as by the French anthropologists), must also be pointed out. It is affected by variations in the height of the face (the line NA), when unaccompanied by similar and proportional variations of the length BN. Thus, of two faces of different lengths, in which BN and the angle BNA, are equal, the shorter one will appear the more orthognathous of the two. This probably does not amount to much practical importance, but if on a more extended and critical examination it should be found to do so, where rigid accuracy is required it will be necessary to resort to the angle itself, which can be calculated from the dimensions BN, NA, and AB, by the application of the principles of trigonometry.*

For the index which expresses the ratio between the lines BA and BN I have used the term "alveolar index,"† but Mr. Busk had previously proposed the more expressive "gnathic index" for one denoting very nearly the same relationship. I should very much prefer to adopt this term in future, as it is scarcely possible that the slight difference between them (Mr. Busk using the auditory meatus instead of the basion as the apex of the triangle) will lead to any ambiguity.

In the series of skulls before us only eight, four males and four females, have the alveolar margin sufficiently complete

* The angle of prognathism or premaxillary angle suggested by Prof. Huxley has its apex at the anterior termination of the basi-cranial axis, or the junction of the presphenoid and ethmoid bones, and its limbs passing the one through the basion, the other through the alveolar point. The principle is therefore the same, but practically it is not so convenient.

† "Journal of the Anthropological Institute," vol. ix, p. 119, and "Catalogue Osteology and Dentition of Vertebrated Animals," Coll. of Surgeons Museum (1879).

to afford the requisite measurements. Of these, in one (No. 1025) the basio-alveolar line just equals the basio-nasal line in length, in all the others it exceeds it. The females happen to be much more prognathous than the males, but the series is too small to draw satisfactory conclusions as to the characters of the two sexes. The general average of 103·7, shows that as a race they enter into the prognathous category,* though not to the extreme degree of the Australian or African negroes.

It has long been felt that in comparing crania one with another actual measurements are of little value unless reduced to terms of some common dimension. The great difficulty has been to find the dimension which is best suited for this purpose. Professor Huxley has suggested the basi-cranial axis (basion to upper end of the ethmo-presphenoid suture),† but this has several disadvantages. It can only be measured in a skull which has been bisected, and it is so short that small variations in its length, or slight inaccuracies in its measurement produce great apparent effects upon the resultant ratios.

In the cranio-facial axis (BN), the first inconvenience is entirely and the second very considerably obviated. There is certainly an element of variability introduced, independent of the actual size of the skull, by the inclusion of the roof of the nasal chamber, and the thickness of the lower border of the frontal bone; but putting aside occasional individual variations, this is one of the most constant dimensions of the cranium, and if not safe to apply to a single skull, will, I think, if averages of a sufficient number of specimens be taken, afford a good standard for comparison.

The constancy of this dimension, the variations having relation apparently only to the general size of the framework of the base of the skull, may be illustrated by the following table of its average length in different races:—

						Millimeters.
17	♂	Eskimo	..	..	..	106·1
7	♀	"	..	..	..	99·5
6	♂	Fijian Mountaineers..	..	..	..	104·0
5	♀	"	..	..	..	98·2
28	♂	Negroes	..	..	..	101·9
30	♂	Australians	..	..	..	101·3
20	♀	"	..	..	..	94·6
40	♂	Italians	..	..	..	101·7
20	♀	"	..	..	..	94·0
100	♂	British	..	..	..	100·9
50	♀	"	..	..	..	94·6
40	♂	Peruvians	..	..	..	100·5
16	♂	Chinese	..	..	..	99·0
12	♂	Andamanese	..	..	..	95·0
12	♀	"	..	..	..	90·7

* The gnathic indices may be thus divided. *Orthognathous* below 98. *Mesognathous* 98 to 103. *Prognathous* above 103.

+ *Op. cit.* p. 72.

Of 100 skulls of male natives of the British Isles of various districts, and different periods of time, the range of the cranio-facial axis is between 91 and 111, but these figures are perfectly exceptional. Four-fifths of the whole number are between 96 and 106, and more than half between 99 and 103. In the examples of the length of the basio-cranial axis given by Professor Huxley, the range of individual variation appears to be quite as great, but as I said before, it is not with individuals, but with averages, that the comparisons must be made in order to obtain satisfactory race characters.

As an example of this method of investigation I have placed side by side the principal dimensions of the crania of the two groups of mankind described in this and my last communication, reduced to the terms of their respective cranio-facial axes, in order to see if any useful conclusions can be drawn from them.

AVERAGE measurements of six crania of male Fijians (mountaineers of Viti Levu) and of twelve male Andamanese, reduced to terms of their respective cranio-facial axes; this dimension (BN) being 104 m.m. in the former and 95 m.m. in the latter series :—

	Fijian.	Andamanese.
Capacity*	144 ..	131
Length	188 ..	176
Height	137 ..	136
Maximum breadth (parietal) ..	123 ..	142
Minimum frontal }	93 ..	97
Maximum " } breadth	106 ..	117
Biauricular " }	112 ..	120
Occipital " }	106 ..	108
Total horizontal circumference ..	512 ..	505
Pre-auricular circumference ..	231 ..	224
Vertical transverse circumference ..	417 ..	432
Transverse Arcs—		
Frontal	278 ..	278
Bregmatic	289 ..	300
Parietal	304 ..	329
Occipital	266 ..	263
Longitudinal Arcs—		
Frontal	130 ..	127
Parietal	138 ..	129
Occipital	118 ..	109
Length of foramen magnum ..	33 ..	35
Total vertical median circumference (excluding BN)	425 ..	401
Basio-alveolar length	103 ..	101
Bizygomatic diameter	131 ..	132
Bijugal "	115 ..	118
Inter-orbital "	25 ..	25
Height of face	80 ..	87
" malar	25 ..	24
Auriculo-orbital length	65 ..	66
Width of orbit	38 ..	38
Height "	32 ..	35
Height of nose	47 ..	48
Width "	26 ..	25

* Number of cubic inches divided by number of millimeters in cranio-facial axis.

A glance at the above table will show that most of the important differences in conformation between the two sets of crania are clearly brought out by the figures.

In the first place the general capacity of the interior of the cranium in the Fijians is larger in relation to the axis than it is in the Andamans. This is accounted for mainly by the fact that the whole median longitudinal arc from the fronto-nasal suture passing over the vertex to the basion is longer in the Fijians as compared with the axis than it is in the Andamanese in the proportion of 425 to 401. The total horizontal circumference is also larger but in a less degree (512 to 505), the preponderance being entirely in the preauricular portion, the diminution in the post-auricular circumference in the Fijians being evidently associated with the diminished width of the parietal region. From the same cause the vertical transverse circumference is less in the ratio of 417 to 432. It is interesting to note that the Andamanese brachycephalic cranium has, contrary to what is often supposed, a larger post-auricular circumference than the Fijian, in which "occipital dolichocephaly" is so strongly marked.

The relative greater length of the Fijian skull even to its own much elongated cranio-facial axis is shown by the figures 188 to 176. The heights of the two are nearly equal, while as might be supposed from the most superficial comparison of the crania, the transverse diameters are, in the Fijian, diminished in every case, but most in the parietal and least in the occipital region. The comparison of the biauricular diameters is interesting, as it shows that, quite irrespectively of the form of the upper part of the brain case, its foundation, as it were, is relatively much narrower in the Fijian than the Andamanese. The comparison of the maximum with the biauricular breadth is also instructive. In the Fijians the increase of the former over the latter is only as 110 to 100, in the Andamanese as much as 118, showing the comparative flatness of the whole side of the cranium in the Fijians. Comparison of the transverse arcs gives equality in the frontal region, preponderance in the bregmatic, and especially in the parietal regions to the Andamanese, and in the occipital to the Fijians. The longitudinal arcs of all three bones are greatest in the Fijians, but the difference is most strikingly seen in the occipital. Thus in every relation the small size of the occipital region of the Andamanese, pointed out in the memoir on the race, becomes evident by this comparison. The greater prognathism of the Fijians is seen in the increased basio-alveolar length. The relative auriculo-orbital lengths are almost identical. The bizygomatic diameters differ but slightly, but the comparative diminution of the bijugal breadth in the Fijian points to a

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narrowing of the fore part of the zygomatic arch and malar bones. The shortness of the whole face of the Fijians is conspicuous, and the difference in the comparative dimensions and consequently in the form of the orbits and nasal apertures are well seen. The orbits being relatively of the same width, gain in height in the Andamanese, while in the same people the nose is higher but narrower than in the Fijians, giving proportions which are also shown in the orbital and nasal indices.

The teeth have unfortunately been lost, either partially or wholly, in all the skulls, in some cases owing to old age, but in most from having fallen from their alveoli after death. Those that remain are strong, well formed, and free from decay. They are of large size, though perhaps not equal to the Tasmanians or Australians. The upper incisors show considerable dental prognathism. The first lower molar has five distinct cusps, and the wisdom teeth appear always to have been well developed and never misplaced, as is so often the case among the Tasmanians; in the skull of a young person (No. 1136) they have taken their position in the jaw, before the closure of the basilar suture.

The two skulls of Kai Colos from Voresika in the Na Drau district, both adult males, resemble those above described in all their essential characters, as is seen in the table of measurements and indices, and so far tend to show that these characters are not peculiar to the Ngalimari tribe, but are those of the islanders generally. They do not, however, show the extremely small latitudinal index of some of the others, and they differ (especially No. 1139) in presenting a greater malar depth with a consequently better marked maxillo-malar notch. In 1139 all the teeth are perfect. In No. 1140, the four upper incisors, and the second and third upper molars of the right side, and the third upper molar of the left side have been lost during life, while all the other teeth are perfect and not much worn. The incisors may have been knocked out in some initiatory or propitiatory rite, but the loss of the molars must be from other cause.

In 1139, globular bony growths from the hinder wall of the meatus auditorius almost completely occlude the passage.

The series of skulls from the coast of Viti Levu, Bau, and the island of Ovalau, mostly from the latter place, consists of seven adults, and six in which the basilar suture is not united. In the adults the sexual characters are less marked than in the preceding, and I have therefore not separated them in computing the averages. Though on the whole presenting many essential

CRANIA FROM THE COAST OF VITI LEVU AND OVALAU.

Number in Catalogue.	Sex.	Length.	Breadth.	Lat. index.	Height.	Height index.	BN.	BA.	Gnathic index.	Nasal height.	Nasal width.	Nasal index.	Orbital width.	Orbital height.	Orbital index.
R. Coll. Surgeons 1141	♂	178	123	69.1	138	77.5	107	107	100.0	51	26	51.0	42	35	83.3
" " 1142	♂	189	137	72.5	140	74.1	105	107	101.9	50	27	54.0	40	36	90.0
" " 1146 A	♂	190	127	66.8	137	72.1	100	105	105.0	50	25	50.0	37	32	86.5
Coll. B. Davis 1644	♂?	193	132	68.4	139	72.0	104	110	105.8	49	25	51.0	39	34	87.2
" 1146 B	♂?	184	124	67.4	133	72.3	98	106	108.2	47	26	55.3	39	36	92.3
" 1146 C	♀	179	125	69.8	131	73.2	99	101	102.0	46	25	54.3	39	33	84.6
Coll. B. Davis 213	♀	183	123	67.2	129	70.5	94	101	107.4	45	24	51.1	37	32	86.5
Averages	...	185.1	127.3	68.8	135.3	73.1	101.0	105.3	104.3	42.6	25.4	52.4	39.0	34.0	87.2

CRANIA FROM VANUA BALAVU.

R. Coll. Surgeons 1143	♂	192	138	71.9	145	75.5	108	106	98.1	53	26	49.1	41	35	85.4
" " 1144	♂	191	132	69.1	138	72.3	110	110	100.0	53	25	47.2	41	36	87.8
" " 1145	♂	189	131	69.3	143	75.7	106	104	98.7	53	28	52.8	41	36	87.8
Coll. B. Davis 1645	♂	180	132	73.3	140	77.8	104	105	101.0	52	25	48.2	40	37	92.5
" 1646	♂	190	144	75.8	145	76.3	103	110	106.8	53	28	52.8	40	35	87.5
" 1643	♂	192	136	70.8	145	75.5	110	109	99.1	57	29	50.9	42	35	83.3
Averages	...	189.0	135.5	71.7	142.8	75.5	106.8	107.3	100.5	53.5	26.8	50.1	40.8	35.7	87.2

characters which show affinity with the Kai Colos, and though some could not be distinguished from them, but would well find a place even among the Ngalimari, as a series they are considerably less uniform. None of the males are so large or powerfully built as the Kai Colos. The average latitudinal index, though still very low, is somewhat greater, viz., 63·8, and in one (No. 1142) this index is as high as 72·5. One of the young skulls (No. 1141 D) has remarkably prominent parietal eminences, though in other parts of the cranium the usual narrowness prevails. Contact of the squamosal and frontal bones occur in three cases of the thirteen, in each case on one side only; in one, however, to the extent of two centimeters, in both the others only slightly. Epipteric bones are frequent (six cases) and the sphenoparietal suture is always short. One (No. 1046 A) has no trace of sagittal suture, though the other usual sutures are all open. This does not appear to be accompanied by any appreciable alteration in the form of the skull. The gnathic index varies between 100 and 108, the average being 104·3. The nasal index from 50 to 55·3, the average being 52·4. The orbital index from 83·3 to 92·3, the average being 87·2.

The last series consists of six skulls, all apparently those of males, and all adults, from Vanua Balavu, one of the Lau or Windward Islands. They are all thick-walled, heavy skulls with strongly marked muscular processes and brow-ridges. In other respects they present considerable individual variations, the latitudinal indices, for example, varying between 69·1 and 75·8. Indeed it is very difficult to describe them as a whole, as they give a decided impression of belonging to a mixed or hybrid race. Knowing to what an extent intercourse has taken place between the Lau Islanders and the Tongans, it becomes extremely interesting to endeavour to ascertain whether the modification from the pure Fijian type seen in these skulls can have been derived from this source.

For this purpose it would be necessary to establish thoroughly the cranial type of the Tongans, which, as mentioned before, is totally distinct from that of the Fijian, being perhaps the purest Polynesian. Unfortunately, I have not at hand means to do so, Tongan skulls being rare in collections in this country, but the Museum contains five crania, all probably of males, two from the Ellice Islands, two from Samoa, and one from Tonga, which agree so well in general characters, and correspond also with skulls from the same part of the Pacific figured by Dr. J. W. Spengel, that averages derived from their principal dimensions may, at all events in default of better information, be taken with tolerable safety as indicating the characters of the race whose intercourse with the Fijians of the Windward Islands may have led to a modification of the physical characters of the latter.

In the following table I have put down what appear to me the most important of the cranial indices of the four series of crania spoken of in this communication, taking for greater accuracy of comparison, the males only of each series, and arranging them according to their geographical position; the pure Fijians from the interior of the Western end of Viti Levu; next, the Fijians from the east coast of the same island and from Ovalau; thirdly, the Fijians from the islands situated 150 miles from Viti Levu in the direction of the Tonga and Samoan Islands; lastly, the inhabitants of the latter islands, probably of pure Polynesian blood. I am fully aware that each series is far too small for a satisfactory average, but the result is certainly remarkable, that in each character (and it must be remembered that these are not characters selected for the purpose, but were determined upon before commencing the comparisons; in fact, they are those selected some years ago for the Museum Catalogue, as the most important) a gradual transition is observed in passing from the first to the last series. Every departure from the type of the pure Fijian of the interior exhibited by the coast or island people is in the direction of the Polynesian, and the change is greater the nearer the geographical centre of the last named race is approached. The only exception in the whole series of figures is in the gnathic index of the mountain and coast Fijians, but this is probably due to the insufficient number of examples, the average in the first case being derived from only four.

	Latitudinal index.	Altitudinal index.	Gnathic index.	Orbital index.	Nasal index.
6 Kai Colos of Viti Levu	65·6	73·1	102·9	84·5	55·9
7 Coast and Ovalau Fijians	69·2	73·9	103·2	86·7	51·5
6 People of Vanua Balavu	71·7	75·5	100·5	87·2	50·1
5 Samoans, Tongan, and Ellice Islanders†	82·6	78·1	98·2	92·3	44·3

It is certainly a remarkable proof of the value of the numerical method of expressing cranial characters, that not-

* Comparison with the female skulls of this series will show that this index is too low to represent that of the race.

† A very fine and characteristic skull of a mae Samoan, in the museum of the University of Oxford, gives the following indices: lat. 84·4, alt. 81·6, gnathic 98·1, orbital 100, nasal 44·1.

withstanding the limited number of specimens disposable, such striking results should be obtained.

The single skull presented to the Museum by Dr. Hobson and figured by Martin as a Fijian, differs completely from the natives of Viti Levu, and even from any of the islanders. In its broad parietal regions (index 78·2), round high orbit (index 100), diminished prognathism (index 98·2) and small teeth, it presents far greater affinities to the Polynesian than to the Melanesian type. The nose alone of all the features bears any resemblance to that of the Kai Colos, but it is still longer from above downwards, and of lower index (53·7) than the average of that race.

Of the cranial characters of the inhabitants of the second great island of the Fijian group, Vanua Levu, we at present know nothing. With regard to Viti Levu, all the evidence we possess shows that the people who inhabit the interior of the island present in their cranial conformation a remarkable purity of type, and that this type conforms in the main with that of the Melanesian islands generally; indeed, they may be regarded as the most characteristic, almost exaggerated expressions of this type, for in "hypsiestenocephaly" they exceed the natives of Fate, in the New Hebrides, to whom the term was first applied.

The intermixture of Tongan or other Polynesian blood with the Fijian appears to be confined to the smaller islands, and even in these not to have very greatly modified the prevailing cranial characteristics. The idea that at some former period the Polynesians had effected an extensive settlement in Fiji, receives no support from the specimens in these collections.

It is probable that much light would be thrown upon the history of events in the Pacific Ocean, if we could obtain a sufficient series of crania from each of the islands, especially from old burial grounds. Distinguishing characteristics of conformation would be traced in each. Some of these might be shown to have arisen from mixture, in various proportions, of different races; others from slight modifications gradually becoming intensified and perpetuated by isolation. To the latter cause the Tasmanians probably owe their peculiar cranial conformation. The isolation of island communities, though in most cases far from complete, protects them to a certain extent from the levelling influences of the constant intercourse, through war and commerce, of tribes living on continents, and the study of natives of such communities may be expected to aid in solving some of the problems connected with the causes of the variations in the human species.

NOTES TO THE TABLE OF MEASUREMENTS.

For convenience of comparison, the greater number of the cranial measurements given correspond to those recommended in the "Instructions Craniologiques et Craniométriques" drawn up by Broca, and published by the Anthropological Society of Paris in 1875.

Certain cases of deviation from these instructions will however require explanation:—

1. *Capacity.* The cranial cavity is filled to the utmost with mustard seed, poured into the foramen magnum through a funnel of narrow aperture. When about half full the shaking and tapping on the sides of the cranium required to cause the seed to settle closely together is commenced, and it is continued at intervals until the cavity is quite filled. The surface of the seed at the foramen magnum is then firmly pressed with the thumb, to cause the seed to fill up the temporal fossæ. As much seed as may be necessary is added to fill up to the level of the margin of the foramen. The seed is then measured by pouring through the same funnel into a graduated glass vessel, frequently shaking and tapping the sides as before, so as to obtain a maximum of compression in each case. This method, if pursued with care, has been found by numerous experiments to give perfectly satisfactory results.

2. The length is measured from the ophryon to the most distant part of the occiput, but for the convenience of those who prefer to include the glabella, a second measurement is given from this point.

14 to 17. The transverse arcs are measured with the tape, from the spot on the ridge (posterior root of zygoma) immediately above the middle of the external auditory meatus, where it is crossed by the auriculo-bregmatic line (line from the centre of the auditory meatus to the bregma.) They pass to the corresponding spot of the opposite side over the most prominent part of the frontal, parietal, or occipital bones, as the case may be, or the bregma (No. 15.) The last corresponds with the *courbe sus-auriculaire* of Broca.

23 to 26. The projections are taken when the cranium is placed on a board, with a line representing the visual axis, *i.e.* a needle passing through the optic foramen and the centre of the anterior aperture of the orbit (fixed by Broca's orbitostat) horizontal. The cranium is regulated in this position by means of thin pieces of wood placed under the occiput. The board has a pin to receive the basion, and a scale running backwards and forwards from this point on which the measurements are

read by means of a square. The facial projection is the part in front of a vertical line passing through the ophryon (Plate XII, Figs. 1 and 2, AF); the anterior cerebral, the portion between this and a vertical through the basion (FB); the posterior cerebral, that part situated behind the basion (BO).

29. The gnathic (formerly called alveolar index) is fully explained at p. 163.

46. The facial angle is that of which the alveolar point is the apex, and of which the limbs pass through the ophryon and the auricular point respectively, taken by Broca's median goniometer.

47. The naso-malar angle is explained at p. 160.

48. The basilar angle is formed between a prolongation of the basio-nasal line and the plane of the foramen magnum, the apex being at the basion. (NBY of the "Instructions," p. 92.)

The measurements of the mandible correspond with those of the "Instructions" except that Nos. 3, 9, 10 and 12 are omitted, and one is added, the coronoid height (No. 53) being the vertical distance between the summit of the coronoid process and the lower border of the maxilla.

DESCRIPTION OF THE PLATES.

All the figures are from specimens in the Museum of the Royal College of Surgeons of England. They are drawn on a geometrical projection, the outline being traced by means of Broca's stereograph and then reduced one-half. The plane of the visual axis (a line passing through the optic foramen and the centre of the anterior aperture of the orbit) is horizontal in the figures in Plates XII and XIII and Fig. 1 of Plate III, vertical in Fig. 2 of Plate XIV.

The numbers refer to the catalogue of the Osteological specimens (1879.)

AO, Line parallel with visual axis passing through the basion. The perpendiculars to this line at A, F, B and O, divide the different segments of the cranial projection. AF, Facial; FB, Anterior cranial; BO, Posterior cerebral.

BN, Basio-nasal line (cranio-facial axis); BA, Basio-alveolar line.

Plate XII.—Side view of skull.

Fig. 1.—Male, No. 1127.

Fig. 2.—Female, No. 1134.

Plate XIII.—Facial view of skull.

Fig. 1.—Male, No. 1127.

Fig. 2.—Female, No. 1134.

Plate XIV.

Fig. 1.—Upper surface, Male, No. 1126.

Fig. 2.—Posterior surface of the same.

DISCUSSION.

The PRESIDENT inquired whether these Fiji mountaineers with large heads of hair being pure Melanesians, would, in Prof. Flower's opinion, go against the common view that the mop-headed Papuans owe their peculiarity of hair to mixtures between Malay and Melanesian. He remarked that though Prof. Flower treated the cephalic index as only a subordinate cranial character, he practically showed it in the case of these most dolichocephalic people to be a most valuable race-mark. He called the attention of the meeting to the interesting series of cranial measurements, where four sets of indices in a crossed race showed intermediate dimensions between the two purest races, which as a reduction of hybridity to measurement was a most instructive result, never previously equalled.

Dr. ALLEN THOMSON expressed the pleasure with which he had listened to Prof. Flower's interesting description of the series of Fiji skulls exhibited to the Institute for the first time, in which the Professor continued his able and accurate application of the newer methods of craniological examination and description to the distinction of the races of mankind, as inaugurated by Broca and others, and in connection with which Prof. Flower from his intimate acquaintance with the subject, and his unrivalled opportunities, was enabled to make important contributions to ethnological science. Dr. Thomson had never before seen such remarkable examples of Dolichocephaly, without scaphocephalic difformity, as were presented by these skulls, and could not help regarding them as indicating a distinctive race or family character. Dr. Thomson congratulated Prof. Flower and the Institute on the recent acquisition by the Museum of the Royal College of Surgeons of Dr. Barnard Davis' rich collection of Crania and Skeletons belonging to different races, from which, notwithstanding the large amount of intelligent work bestowed upon it by its former possessor, new and useful information may be confidently expected in its association with the collection of the College from the investigations of Prof. Flower.

The ETHNOLOGY of GERMANY.—PART V.

THE JUTES AND FOMORIANS.

By H. H. HOWORTH, Esq., F.S.A.

It is the almost invariable result of taking a new step in ethnology as in other sciences, that we are obliged to modify considerably our views along the whole line. The fresh vantage that we gain enables us to see that what was formerly held as

indisputable, is based upon very frail evidence indeed, and we are constrained to alter our picture accordingly. This makes it very important that we should make sure of every step.

In a former paper I have argued that the accounts of the settlement of the Saxons on the English coasts, as contained in the Anglo-Saxon Chronicle, are for the most part as fabulous as the story of Romulus, and that far from their having come here in the middle of the fifth century, and settled as conquerors, that they came at least a century earlier, and that they settled here largely as colonists. Since I wrote that paper I have met with other evidence which had previously escaped me, and which all tends to strengthen the view there put forth.

Prosper of Tyre, who wrote a Chronicle which reaches from A.D. 378 to 456, tells us expressly that in the 18th year of Theodosius, *i.e.*, in A.D. 441, Britain, after suffering from many previous attacks, submitted to the Saxons. "*Britanniæ usque ad hoc tempus variis cladibus eventibusque latæ, in ditionem Saxonum rediguntur.*" (*Mon. Hist. Britt.*, lxxxii). This is quite inconsistent with the usual date of the Conquest as given by the Anglo-Saxon Chronicle and by Bede.

Constantius, Bishop of Lyons, who flourished during the fifth century, and wrote a life of Saint Germanus, and may be accepted as a contemporary witness, describes how his hero, on his visit to Britain, which took place, as we know from Prosper of Aquitaine, in 429, led the Britons against the Picts and Saxons, in the famous Hallelujah victory. This also is many years before the date generally received for the invasion of Hengist and his people, and if the site of the battle is to be identified, as Ussher and others argued, with Maes Garmon, near Mold, in Flintshire, then the Saxons were not only in Britain, but had also penetrated into its very recesses.

These two authors were actually contemporaries of the facts they relate, and their evidence is of immensely greater value than Bede or the compilation of the tenth century, which goes by the name of the Anglo-Saxon Chronicle.

I have shown how many of the names in the latter narrative are formed out of names of towns: but another fact in the record makes us see what an artificial and untrustworthy narrative it is. Lappenberg, with his usual acumen, was, I believe, the first to draw attention to this. He says the events in the Saga of the Aescings, or founders of the Kingdom of Kent, take place in an eight times repeated cycle of eight years, and adds, "If so many traces of fiction did not betray a poetic source from which these meagre chronicles derived their narrative, yet must those numbers awaken suspicion," etc. (*Op. cit.* 77.)

Thus in 449, Vortigern invites the Angles to Britain. In

457 the Britons fought against the invaders at Crecganford. In 465 Hengist and Aesc fought with the Welsh at Ebbsfleet. In 473 they again defeated the Welsh. In 488, 40 years after his arrival, *i.e.*, five times 8 years, Hengist died. Aesc then reigned 24 years, *i.e.*, three times 8. (*Anglo-Saxon Chronicle, passim*). From this point, for 80 years, we hear nothing of Kent, save of the succession of the three kings, "Octa or Ocha, the son of Eric or Aesc, Eormenric and Æthelbert, who is named in 568; he reigned 48 years, and his successors, Eadbald and Earconbeht, each 24." (Lapenberg, 75.)

Similarly, Ælla is said to have landed in 477, and to have fought with the Welsh in 485. Such artificial numbers show how purely conventional the chronology is. But it is more than conventional, it is inconsistent with itself. Thus, Bede gives us both the year 449 and 459 as the beginning of the joint reigns of Marcian and Valentinian, the former in his *History* and the latter in his *Chronicon*, the right year being 450; and yet this is the crucial date of his chronology, for he tells us the Saxons landed during their reign. If it was during their reign, as he asserts, and as the *Chronicle*, following him, also asserts, it was clearly neither in 448 nor 449, but in 450, or one of the seven succeeding years. But the fact is, that the date 448 is a purely artificial one. As Mr. Skene has argued, it is founded on an erroneous construction of a passage in Gildas (who apparently puts the arrival of the Saxons after the third consulship of Aetius, which was in 446), and a manipulation of the story of Constantius, about the Hallelujah victory over the Saxons, which Bede understands as of the second visit of Germanus, while Constantius clearly refers it to the first. This date of Bede's is therefore of no value, and it is the cardinal date upon which the artificial chronology of the *Anglo-Saxon Chronicle* has been based.

Now, in the "*Historia Britonum*," which in its earliest shape was probably not later than Bede, but, as I believe, earlier, we have three different dates for the arrival of the Saxons, the latest of which is 428. This date occurs only in the Harleian MS., which was written in 954. There we are told that Vortigern began to reign in the joint consulship of Theodosius and Valentinian, *i.e.*, in 425. Four years after this, and in the consulship of Felix and Taurus, *i.e.*, in 428, the Saxons first arrived. This date seems to me to be clearly deduced from Constantius, and to coincide with that of the Hallelujah victory, and the first mission of St. Germanus, nor does it occur in the other copies of the *Historia Britonum*. The next date is apparently based on British traditions. In this we are told that from the first year of the arrival of the Saxons to the fourth year of King Mervin was 429 years. This entry is as old as the edition of the

"*Historia Britonum*," published in 821, which was the fourth year of King Mervin, and thus puts the Saxon invasion in 392, which as Mr. Skene, to whom I owe a great deal of my matter as to these dates, says, corresponds well with the oldest Welsh chronological tables, and that preserved in the Red Book of Hergest, a MS. of the thirteenth century, which says that from the reign of Vortigern to the battle of Badon was 128 years. As the "*Annales Cambriæ*" put the battle of Badon in 676, this puts the beginning of Vortigern's reign in 388, and the arrival of the Saxons, four years later, in 392.

A third date given in the "*Historia Britonum*," not reconcilable with the last, is 374. We are told that Vortigern invited the Saxons in the 347th year of Christ's passion, and while Gratian and Æquantius were consuls. This answers to 374. I quote these dates as showing that neither in the British nor the Saxon traditions were there any fixed points upon which to hang the chronology, so that the early dates in the Anglo-Saxon Chronicle are as valueless as the statements of fact.

We have no alternative after this criticism but to reject that work altogether, as an utterly worthless testimony in regard to the settlement of the Saxons on the south and east coast and to adopt the position maintained in a previous paper—that they settled there at an earlier date, and peaceably. They apparently became faithful adherents of the Emperors who ruled in Britain. The last Imperial coins struck in the Island were aurei of Maximus (A.D. 383–388), with the monogram of London, of which a specimen may be seen in the British Museum. The next coins we have are certain gold coins with a head on the obverse, apparently fashioned on the model of these coins of Maximus, and with a blundered legend that is not legible. These have been found on the south coast, and one of them at Lympne, one of the stations of the Saxon shore. They seem to show that on the withdrawal of the Romans, the people there continued the previous coinage after a rude fashion. It would seem from the statement of Gildas, if we are to credit it, that the invitation to Aetius sent by the distressed Britons, was sent by the cities of Britain, which also points to the probability of there not being any reguli or chieftains among the maritime Saxons at this date. They had in fact become incorporated with the empire.

If we pass from the testimony of external witnesses to internal evidence the same conclusion is abundantly supported. Thus the districts peopled by the Saxons in South Britain, where as I argue they settled as colonists and not as conquerors, are marked by a very well distinguished dialect, whose boundaries can be traced with considerable minuteness. This dialect has certain idiosyncracies of its own. It is not so

nearly allied to the mother tongue of both, the Friesic, as its northern sister the Anglian dialect of Mid and East Britain. It bears the marks of having been softened and altered by contact with a foreign race, and I have no hesitation in assigning its peculiarities to the fact that the Saxons where it is spoken were largely mixed with the indigenous Romano-Britons, and that both in blood and language they were accordingly much corrupted. This is confirmed by the evidence of the Kentish and West Saxon laws; where the *Wealh* or *Læt* were the class of tenants who were neither free nor slaves answer to the same class in Lower Saxony where they represented the Thuringians who were conquered by a race of kindred origin, and therefore not reduced to slavery but made into leaseholders. These *Wealhs* or *Læts* I believe represent the Saxons of the old colonisation under the Romans, who were conquered by later invaders; I shall have much to say of the class in a future paper. In a learned work by Mr. Coote on the Romans of Britain there are a number of additional facts cited which are very interesting for the purposes of this discussion. In speaking, for instance, of the Anglo-Saxon dialect he says:—"It had and has a sound always unknown to the whole of Germany and Scandinavia, the sound represented in our alphabet by the letter W It was the living sound of the Roman consonant V, the digamma of the Aeolians. . . . The Romans so impressed upon the vernacular of the Belgic coloni and proletariat the rich broad ring of the digamma that it has never since left our island. Neither Anglo-Saxon nor Dane, Norman nor Gascon could weaken or efface its masculine echo. The Belge continued true to his Roman teaching, and pronounced his own *Venta* and *Vectis*, *Went* and *Wight*. The Roman *vinum* and *vicus* were still to him wine and wic. Even the rude god of the Anglo-Saxons became Woden, as in the two heroes of their folk-lore, *Weland* and *Wada*, vicings became wicings, Saint Valery became Saint Walery, Guillaume was Wilhelm or William," etc. (*op. cit.* 33-36). Mr. Coote, already cited, has published the following most interesting and instructive list of Anglo-Saxon words which are of Latin etymology and prove, as he says, that Anglo-Saxon was a language spoken at one period by a Germanic nation conversant with the Romans.

<i>Adfinie</i>	.	..	..	<i>adfinis</i> (an agrumensarial term).
<i>Æhs</i>	..	.	..	<i>abies</i> .
<i>Amber</i>	..	..	..	<i>amphora</i> .
<i>Ampulle</i>	.	..	.	<i>ampulla</i> .

Ancer	..	..	..	anchora.
Cafestre	..	..	..	capistrum.
Camp	..	..	..	campus.
Candel	..	..	..	candela.
Carcern	..	..	..	carcer.
Carene	..	..	..	carcerum.
Ceastl				
Castel	}	..	..	castellum aquæ.
Castello				
Cawl	..	..	..	caulis.
Caster	..	..	..	castrum.
Cerse	..	..	..	cresco, crescere.
Cirse	..	..	..	cerasus.
Cisten	..	..	..	castanus.
Cluse		..	..	clausum.
Coc	..	..	..	coquus.
Col		..	..	collis.
Corte	..	..	..	cohortis (cohors.)
Cordher	.	..	..	cohortis (cohors.)
Culter	..	..	..	culter.
Cycene	..	..	..	coquina.
Cye	..	..	..	culeus.
Cyse	..	..	..	caseum.
Cyste	..	..	..	cista.
Denim	..	..	.	damnum.
Disc	..	..	..	discus.
Dol	..	..	..	dolus.
Earce	..	..	..	arca.
Ecede	..	..	..	acetum.
Ele	..	..	..	oleum.
Eln	..	..	..	ulne.
Fæmne	..	..	..	femina.
Fan	..	..	..	vannus.
Fic	..	..	..	ficus.
Finie	..	..	..	finis.
Fore	..	..	..	furca.
Fos	..	..	..	fossa.
Fonte	}	..	..	fons fontis.
Funte				
Getrum	..	..	..	turma.
Gimn	..	..	..	gemma.
Hænep	..	..	..	cannabis.
Ince	..	..	..	uncia.
Læne	..	..	..	linea.
Lin	..	..	..	linum.
Lodh	..	..	..	lodix.

Lyswe	..	..	..	læsis.
Mangere	..	..	..	magnarius.
Meowle	..	..	..	mulier.
Mere Mare	..	..	..	merus.
Mil	..	..	..	mille for mille passuum.
Miln (a mill)	..	..	..	molinum.
Mortar	..	..	..	mortarium.
Mul	..	..	..	{ mulus.
				{ mullus.
Mynet	..	..	..	moneta.
Mytle, mytla	..	..	..	modius.
Outgeard	..	..	..	hortus.
Ostre	..	..	..	ostrea.
Pall	..	..	..	pallium.
Pending	..	..	..	pende pendere.
Peppor, pipor	..	..	..	piper.
Pic	..	..	..	pix.
Pil	..	..	..	pila.
Pise	..	..	..	pisum.
Port	..	..	..	{ portus
				{ porta
Profian	..	..	..	probare.
Pund	..	..	..	pondo.
Pyrige	..	..	..	pyrus.
Pyt	..	..	..	puteus.
Scale	..	..	..	scala.
Sceacere	..	..	..	exactor (bubutorum.)
Segn	..	..	..	signum.
Sester	..	..	..	sextarius.
Spata	..	..	..	spata.
Spyrta	..	..	..	sporta.
Steor (bord)	..	..	..	dexter.
Stræt	..	..	..	strata.
Sweet	..	..	..	secta.
Symbol (banquet)	..	..	..	symbola.
Syrf	..	..	..	sorbus.
Tæfel	..	..	..	tabula lusoria.
Tæppere	..	..	..	tabernarius.
Tigol	..	..	..	tegula.
Torr	..	..	..	turris.
Wallerwente	..	..	..	valorem æquantes.
Weall	..	..	..	vallum.
Wench	..	..	..	ancilla.
Wie	..	..	..	vici.
Villa, wella	..	..	..	villa. (<i>op. cit.</i> 36-40.)

Mr. Coote, in speaking of this list, well says that these Latin words are survivals only, which in the tenth and eleventh centuries still made head against the rising flood which had submerged a larger vocabulary. (*Id.* 41.)

This evidence again is amply supported by that of archaeology. The wide district peopled by the Saxons as distinguished from the Angles is marked by very curious archaeological facts. It is over this district that we find those circular brooches with inlaid pastes and stones of which similar ones are found in Teutonic graves along the Rhine, as may be seen in the splendid collection at Mayence. In this district of South Britain may be seen also a series of gold ornaments fashioned in a different style and of much more elaborate workmanship than those of the Anglian districts and which point to their having been inspired probably by Roman models. The evidence therefore is overwhelming that the Saxons were in South Britain much earlier than the accounts of the Anglo-Saxon Chronicle would have us believe, and that they were settled here as colonists. This conclusion naturally throws immense doubt on the narrative in the Chronicle and makes us inquire more closely into its structure. I showed in the former paper how clearly fabulous the account of the foundations of the kingdoms of the East Saxons and South Saxons, as told in the Chronicle, are. I may add that in the "*Historia Britonum*," to which I shall refer at greater length presently, not only is nothing said about independent dynasties in these two districts, but we are expressly told that both of them formed part of the country granted by Vortigern to Hengist (*vide infra*). I shall therefore postulate in future that "the Saxon shore" was inhabited by Saxons probably from the time of Carausio or Carauseo (as he is called by Aurelius Victor). His name seems to be connected with that of the Cæræsi to whom we referred in our paper on the Germans of Cæsar. That he belonged to the Continental Menapia is made clear by the statement of Eumenius, that he invited the Franks to invade Batavia, which they occupied, he tells us, under the sanction of its quondam alumnus.

In confirmation of the theory that he planted the Saxons on the south coast may be added the tradition in the Brut that he did the same with the Gwyddel Flicht in the north of the island. (Herbert Brittainia, after the Romans 9-11.) These Saxons were doubtless planted, as the other Germans were elsewhere, on the borders of the empire as "*læti*," or military colonists, and they were doubtless under the command of their own leaders. As Mr. Coote says, it was the settlement of certain chiefs with their "*comites*." He adds that the Batavians, who at an early period entered the military service of the empire,

at all times insisted and obtained that they should be led by their own notables . . . and we are told by Ammianus Marcellinus, himself an old soldier, that this was the general practice under the empire in the case of all the cohorts of Goths and Teutons engaged in the service of Rome. (*Op. cit.* 31, 16, 8. Coote, "Romans of Britain," 209.)

Not only have the Britons left their traces in the archæology and dialect of the southern part of the island but also in its topography; Kent was the old name of the district before the Saxon invasion; Berks preserves for us the name of the Bibroci who lived in the district before the Romans arrived; Cashio, a hundred in Hertfordshire, is a record of the Cassi; London and the many town names compounded with Chester and Street are similar proofs.

The tenure of gavelkind is another instructive proof of our contention. It is a word derived no doubt from the Welsh "gavæl," a holding, and thence passing as "Gabelle" and "Gavellum" into French and Franco-Latin, and adopted also by the Saxons in the word "gafol," a tax, which is not found in the other Teutonic dialects (Robertson, "Scotland under her Early Kings," ii, 266). This tenure with its attendant consequence of the youngest or hearth child succeeding to the homestead, probably survived from the days before the settlement of the English. The corresponding tenure of Borough English, perhaps was derived from the same source. It is curious that out of 319 manors enumerated by Mr. Corner in which this custom prevailed, 136 were in Sussex, 53 among the East and Middle Saxons, and 96 in East Anglia, all districts of the Littus Saxonicum, while there were only 12 in Wessex, of which nine were in Hampshire, the remaining 23, save a solitary one in Kent, being scattered over Mercia or along the frontiers of Wales (Robertson, *op. cit.*, ii, 268).

Another important fact, proving that there was no violent displacement of the old inhabitants, but a gradual colonisation by the new comers, is mentioned by Mr. Wright. "It seems certain," he says "that in some parts, especially in some of the cities, the transition from Roman to Saxon was gradual, and that the two races mixed together. At Canterbury, Colchester, Rochester and other places, we find Roman and Saxon interments in the same cemetery: and in the extensive Saxon burial-ground at Osengal, in the Isle of Thanet, a Roman interment in a leaden coffin was met with. The result of the discoveries which have been made in the researches among the Saxon cemeteries, has been to render it more and more probable that the Saxons were gradually gaining a footing in the island before the period at which the grand invasions are understood to have

commenced.” This opinion from so accomplished an archæologist is of the highest value in this controversy.

Since writing the above, I have received the following communication from Mr. Keary, which I think so valuable in this discussion that I have incorporated it:—“What then is in sum the evidence upon this question which a study of the numismatic history of the time has afforded us? Our examination of the various codes of the Teutonic continental nations has led to the conclusion that among all those German people who had remained near the borders of the old Roman Empire, and had not shared in the movement which hurried the brother nations away from their early homes into France and Spain, and Africa, and Italy, there had been preserved unbroken the tradition of a silver currency. Tacitus, in the first century, noticed the preference of the German people for old and well-known types of Roman silver coins; Mommsen tells us, from the evidence of finds, that in the general debasement of the currency which marked the third century, the pure silver money fled and hid itself in Germany; and now in the seventh and eight centuries the Teutonic codes show us the Germanic nations of the border still in the use of silver coins, and when with Charlemagne, German influences become paramount in France, the change is marked by the substitution of a silver for a gold coinage. By the help of the information gleaned from the laws we are able to show a sort of ring round central and southern France, comprising the districts in which, before the time of Charles, silver had remained the standard metal. The circle took in the Alemanians and some of the Bavarians; it took in Ripuaria and the north of Francia proper (where in the west were long settled the Saxons of Gaul), and a part at least of Frisia, but it left out Old Saxony, and most certainly never approached the Cimbric Chersonese. These lands lay beyond the region of a currency of which the silver region was as it were the penumbra.

“Do we continue our circle, it takes in the portion of England opposite to the *silver coasts* of France and Holland, and we should say *primâ facie* that *had* this district, too, been from early days German, as the land of the Ripuarians and Frisians was, and similarly the land of the Saxons in Gaul, the tradition of a silver currency would, in like manner, have been preserved. But we should have no reason to expect anything of the sort had the inhabitants of this land not been of Teutonic blood; if they had been as fully subjects of the Empire as the Britons were. We should, too, assert with some confidence that if this country had undergone a sudden and utter revolution between, say, the days of Constantine and the date of the

appearance of the earliest Saxon coins, if the older inhabitants had been all driven away or put to death by strangers to them, and to all their civilisation, then no tradition of a currency would have been handed on from the days of Carausius or Constantine to the days of Ethelred of Mercia or Ethelberht of East Anglia. Now what are the facts? Not only have we evidence that just the region of the old "*Littus Saxonicum per Britannias*" is the region of the earliest silver coinage of England, and that when we pass beyond this district (in one direction at any rate*) no silver coinage appears for at least a hundred and fifty years, but we have much stronger evidence than in the case of the continental nations we found for the continuance of a traditionary currency. In the first case, we argued upon the fact of the silver having been found current just in the regions where we might expect to find it: here not only is this the case, but the *types* of the earliest Saxon coins are found in a vast majority to imitate bygone Roman types. And we have clear evidence that Roman coins were preserved and copied as late as Ethelberht of East Anglia (793).

"It is of course *possible* that the Saxons and Angles coming from a land which knew not a coinage, and without holding any communication with the Britons, found as it were by accident some Roman coins, and constructed a monetary system in imitation of these. This was the older theory, so far as any theory of the origin of the *sceattas* had been formed. But what a chapter of accidents it involves! How curious it is that the discovery was confined to certain regions of the land,—just those regions where according to other evidence the old Saxon colonists must have lived! How strange that the same fortunate discovery was never made in Wessex! How strange, again, if the use of silver money sprang up thus suddenly among the Angles and Saxons of the East, that it was never communicated to their brethren of the West! Or if this be partly accounted for by the supposition of a frequent communication between the opposite coasts of England and France, why were the types of the English coins not taken from those which were in use upon the Continent?

"This army of difficulties melts away if we put in the place of the popular view of the English invasion the more reasonable theory of an old Saxon settlement on some of the coasts of this land, substitute for the old theories or no theories of the origin of the *sceattas* the supposition of a continued use of silver money among the Saxon settlers, handing on the habit of a

* Into Wessex. Beyond the northern limit, *i.e.* in Northumbria, the currency was of copper. The locus of the early silver coins, the *sceatta*, is from the Southampton Water to the Wash.

currency from the time of Carausius to the time when the sceattas were first coined.

"It takes a long time for a people to become thoroughly familiarised with a coinage; once they have done so, it takes as long to make them abandon it. If Tacitus found the Germans still using consular denarii, we need not be surprised that the silver money of Carausius—coins of the palmy days of the *littus Saxonicum*, should have continued in circulation for many hundred years, when the civilisation of Rome had withdrawn from our coasts, and 'the dark cloud which had been cleared by the Phœnician discoveries, and finally dispelled by the arms of Cæsar, again settled down upon the shores of the Atlantic, and a Roman province was again lost among the fabulous islands of the ocean (Gibbon). In the thought of this decay, we see no difficulty in understanding why, when the Saxons came to supplement the decreasing numbers of the Roman coins by a manufacture of their own, they were only able so rudely to imitate the original types.'"

It is curious in regard to the *Littus Saxonicum* to which we have made such frequent reference in this paper, that the jurisdiction of its towns is still preserved in that of the Cinque Ports—another proof of continuity with Roman times.

Having examined the first wave of Saxon settlers along the southern and eastern coasts of Britain, let us now turn to the second. This brings us face to face with another difficulty, namely, the relationship of the Jutes. The story or Saga of Hengist and his followers has come down to us in three different forms. It is told in great detail in the "*Historia Britonum*," in less detail by Bede, and in a fragmentary fashion in the Anglo-Saxon Chronicle. I have already dissected the chronology of the last two authors, and shown reason for believing it to be quite arbitrary. I have no doubt, further, that their accounts have been drawn from the "*Historia Britonum*" or the source whence the latter was itself derived. As I have said, the earliest recension of the latter work is certainly as old as the time of Bede, and, as I believe, even considerably older. The account of Bede is merely a truncated version of that in the "*Historia Britonum*," and seems to me to bear the evidence of having been composed from it; while that of the Anglo-Saxon Chronicle, as I have shown later on, only differs from it in the substitution of one synonym for a locality for another, and in the conversion of what were palpably Saxon defeats into victories. My conclusion, therefore, is that the "*Historia Britonum*" is the best, fullest, and earliest recension we have of the Saga. The next point that we must consider is as to its historic value. I confess that it seems to me to bear palpable evidence of its

being authentic. It has, no doubt, been interpolated and altered in the version of Mark the Hermit, which apparently became the mother MS., but in the main it contains, as I believe, a faithful record of the tradition, and is of great value.

The scepticism of Kemble, based upon the occurrence of two such names as Hengst and Horsa, is not reasonable. Why should these names be more mythical than Ursus and Lupus among the early Gallic bishops, or as Dr. Simpson has said, than Drake and Hawkins among English navigators, or Wolfe and Lyons and Horsman among other English notables? It would surely go hard with Columbus if this form of criticism had any value, for we are expressly told by his son Ferdinand, that "he took the olive branch and oil of baptism across the ocean;" figures, no doubt, suggested by his name Columbus, derived from Columba, a dove; moreover, as Dr. Bosworth has shown, the names Hengst and Horsa still survive, and are in use among the Frisians. As to there being joint leaders of the expedition which has also been made a ground for scepticism, it is forgotten that this was the usual way in which piratical expeditions were led in early days. Ivar and Ubba, Ivar and Olaf the White, Ivar and Haldene, Biorn and Hasting, Godfred and Sigfred, are some instances from Norse times; Ibor and Ayo among the Lombards, from earlier legends.

I have no hesitation therefore in accepting the Saga of Hengist as in the main a truthful narrative, and as standing on quite a different footing altogether to the accounts in the Anglo-Saxon Chronicle about the South Saxons and the East Saxons. The genealogy of Hengist, which has been so amply and curiously preserved in the British narrative of the "*Historia Britonum*," seems to me to be also of high authority, but we are not confined to one narrative in our criticism of the history of these dark times, and can gather glimpses of light from other sources.

The name Jute is probably not of very old date and was not improbably derived from Geata, the eponymos of the race, as the Kentish Royal House calls itself that of the Aescings, that of Denmark the Scioldings, of Sweden the Ingling, etc., from similar eponymy. It is quite clear from a number of considerations that it was a synonym for Frisian, and that Jute and Frisian in fact connoted the same people. Thus while Bede divides the English race into Angles, Jutes, and Saxons, Procopius, who lived much nearer the time and in the sixth century, divides them into Angles, Saxons, and Frisians.

Hengist, the leader of the Jutes according to Bede, was descended, according to the genealogies both in the "*Historia Britonum*" and the Anglo-Saxon Chronicle, from Fin the son of Folcwald the son of Geta. Now, Fin the son of Folcwald is

named in the Traveller's song and is there distinctly called *Fresna Cynne*, "of Frisian race." The invaders of Scotland in the fourth century were led most probably, as I shall show presently, by *Vecta*, an ancestor of *Hengist*, while in the fifth century they are found there under the latter's nephew *Octa*, and it was thence that *Aesc* went to rule over Kent; so that according to the *Saga*, which is our only authority, there can be no doubt that the invaders of Kent and those of the eastern seaboard of the Scotch lowlands were the same people. It is therefore natural to find *Nennius* speaking of one of the inlets on the Scotch coast as the *Mare Fresicum*; while *Josceline*, in his life of *Kentigern*, as Mr. Skene has pointed out, calls the shores of *Culross*, *Fresicum litus*. That learned author argues forcibly that this name was derived from a large Teutonic colony which occupied the modern counties of *Fife* and *Kinross* and the maritime part of *Forfar* bounded on the land side by the second chain of the *Ochils* and *Sidlaw* hills, which separate, as he says, the low maritime tract from the great *Straths* of *Stratherne* and *Strathmor*. This district is marked by a peculiar Teutonic topographical nomenclature in that the hills within it are termed *laws*, the *Sidlaw* hills, its frontier, being a notable instance. Another large colony was apparently settled near *Dumfries*, which is identified by Mr. Skene as the *Caer Pheris* of *Nennius*, and explained by him as the *Dun* of the *Frisians* in contrast with *Dunbreton* or the *Dun* of the *Britons*, and he quotes a curious anecdote from *Josceline's* life of *Saint Kentigern*, where we read that on his way back from *Wales* to *Glasgow*, the *Saint* stopped at *Holden* or *Hoddelen* (compare the name *Hadeln* applied to a considerable district on the *Frisic* coast between the *Elbe* and *Weser*) in *Dumfriesshire*, where a mound artificially rose from the ground as a platform for him, and we are told he thence addressed the people and demonstrated to them that *Woden*, whom they and especially the *Angli* believed to be their principal god, from whom they deduced their origin, and to whom they dedicated the fourth day of the week, was a mortal and a king of the *Saxons*.

In the midst of the *Fresicum mare* was the island fortress of *Guidi*, identified by Mr. Skene with *Fedra* island near the *Bass rock*, but as I think more probably by the late Sir James Simpson with *Inch Keith*, which seems to me to preserve the alternative name of *Jute*. The same fortress is mentioned in the additions to *Nennius* and is there called *Judea* (M.H.B., 76). The name perhaps also remains in *Jedburgh*. Whether this be so or not there can be small doubt that the *Jutes* and *Frisians* were the same people, a conclusion supported by the occurrence of the names *Hengist* and *Horsa* among the modern *Frisians* by the Middle Age legends connecting *Hengist* with *Holland*, but above all by

the close affinity of the Northumbrian dialect of Anglo-Saxon with that of Friesland. How then came the change of name to Angle, on which name we shall have much to say in explanation of this very fact, when in a future paper we treat of the Angles? Precisely, I believe, as the Angles were sometimes called Saxons. Neither Saxons nor Jutes were old names because the people who were rigidly entitled to use them were new comers. The names were not those of the mass of the people but only of the ethelings or princely caste; that section of them to which the kings belonged, the sacred race of the north which supplied its upper stratum to the Norsefolk, to the Goths and Vandals and Franks, one branch of which was known as Geatas or Aescings, another as Scioaldings, a third as Inglings, a fourth as Merwings, another as Saxons, etc., etc.; but all claiming close kinship and tracing descent from Odin and the Asirs. The invaders in the north of England were in fact Frisians led by a caste of this royal stock, a caste or sept known as Geatas. Thus it comes about that the latter name appears so late. Its first undoubted occurrence known to me is in a letter of the Frank King Theodebert to the Emperor Justinian, when he writes of their submission to himself in these words "subactis cum Saxonibus Euciiis, qui se nobis voluntate propria tradiderunt . . . usque in Oceani litoribus dominatis nostra porrigitur" (Zeuss, 501). A little later we find them mentioned by Venantius Fortunatus, who flourished about the year 580, in a passage where the name "Dane" apparently occurs for the first time. He names them among the foes of the Franks in the time of Chilperic, thus—

"Quem Geta, Wasco tremunt, Danus, *Euthio*, Saxo, Britannus,
Cum patri quos acie te domitasse patet." (*Id.*)

These northern invaders were called Saxons by Claudian, they were known as Saxons to the Gaelic people of Scotland, who still call the English race by the name.

They were known as Saxons to the Cymraeg people of Wales and Strathclyde, for Saxon is still the indigenous generic name for the whole English race.

Adamnan speaks of King Aldfrid as visiting a friend in Saxonia, meaning the country of the Angles, and Nennius brings the people of Hengist from the island of Ongghul, *i.e.* from Anglen.

Bede, in his account of Yarrow, describes himself as an ecclesiastical office-bearer in Saxonia, although he was an Angle. Ambrones, as I mentioned in a former paper, is used by Bede as a synonym for the Old Saxons. It is curious to find the author of the additions to Nennius applying it to the Angles of Northumbria, who were baptized by Paulinus ("Mon. Hist. Britt., 76)," showing that the names Jute, Angle, and Saxon were used

indifferently. Bede, in fact, uses the phrase, "Tunc Anglorum sive Saxonum gens" of the actual followers of Hengist, whom he afterwards calls Saxons; while in the "*Historia Britonum*" we never meet with the name Jute, the invaders being invariably called Saxons by its author. Let us now on with our story. After the planting of the garrisons along the southern and eastern shores of Britain on the Saxon shore the southern parts of the island were for a long time unmolested, and the strong hands of the emperors who reigned in the first half of the fourth century were quite competent to restrain marauders. When we next read of the Saxons as invaders they are found in North Britain. They have nothing to do with the previous wave who were already settled in the south, and had then become Roman citizens, and this invasion forms an entirely new departure in Saxon history.

In the year 360 Ammianus Marcellinus mentions how the Picts and Scots having broken the peace to which they had agreed, were plundering the districts on their borders and keeping in constant alarm the provinces exhausted by former disasters, whereupon Lupicinus was sent with two extra legions and an auxiliary force of light armed Heruli and Batavi against them. We are not told that he did anything against them, and are led to infer, from the contemptuous terms in which he is referred to, that he did not. Four years later, namely in 364, the same author tells us that the Picts, Scots, Saxons, and Atacotti harassed the Britons with incessant invasions. This is the first mention of the Saxons in this their second campaign against the British territory, and as will be seen from the tribes they are named with, they clearly came from the North and were in alliance with the tribes who lived beyond the wall. Four years later, namely in 368, we are told that news reached Valentinian that Britain was reduced by the ravages of the united barbarians to the lowest extremity of distress; that Nectaridus, the Count of the Sea Coast, had been slain in battle, and the Duke Fullofaudes had been taken prisoner by the enemy in an ambushade. Valentinian, struck with consternation, sent Severus and then Jovinus; and lastly, on account of the formidable reports which reached him, Theodosius, who at the head of a large army went to restore matters. At this time Ammianus says the Picts, who were divided into two nations, the Dicaledones and the Vecturiones, and likewise the Attacotti, a very warlike people, and the Scots, were all roving over different parts of the country and committing great ravages (*id.*, 453 and 454). The Vecturiones of this passage, as I shall show presently, were most probably Saxons. Claudian in his panegyric on Theodosius puts the Saxons in the Orcades or Orkneys. Thus:—

“ Quid rigor æternus coeli, quid sidera prosunt,
 Ignotumque fretum? maduerunt Saxone fuso
 Orcades: incaluit Pictorum sanguine Thule
 Scotorum cumulos flevit glacialis Ierne.”

(Claudian de quarto Consulatu Honorii Augusti Panegyris, 30-34.)

Again, when in 396 and 397 Stilicho came to Britain to repel another invasion, the same panegyrist writes:—

“ Munivit Stilichon, totam cum Scotos Iernen
 Movit, et infesto spumavit remige Tethys
 Illius effectum curis, ne tela timerem
 Scotica, ne Pictum tremere, ne litore toto
 Prospicerem dubiis venturum Saxona ventis.”

(Id. in primum consulatum Stilichonis, lib. ii, 247.)

These passages show that Scotland was at this time inhabited by colonies of Saxons as well as Picts and Scots, and this is confirmed when we turn to those much-neglected but very valuable authorities, the Irish Annals and Sagas, to which, excepting always their chronology, I am disposed to attach considerable credit. Now in one of the most famous of the battles mentioned in the early annals—that of Magh Mucreimhe near the present Athenry in the county of Galway, which is dated by the annalists about 195 A.D., and was fought between Mac Con and Art, son of Conn of the Hundred Battles—we are told the former was assisted by the Franks, *Saxons*, Britons and Albanians (O'Curry's Lectures, vol. i, xxi.).

Niall of the Nine Hostages is said in the Irish legends to have been killed in Britain on the Iccian Sea, *i.e.*, the Straits of Dover, in 405. He may have led one of the confederate armies which then so terribly molested the English shores.

In the story of Brudin Daderga we find mention made of many foreigners, among others of Saxons, at the Court of Conain Mor, King of Ireland.

In the Ulster Annals we find under the year 434, the date ought to be remarked, “Prima præda Saxonum in Britannia.” In 471, the second plundering of the Saxons in Ireland is mentioned.

The common object of attack. Roman-Britain, says Mr. O'Sullivan, brought the Irish and Saxons in contact at an early period; and that this intercourse was on the whole of a friendly character is shown by the frequent intermarriages between them and their presence at the Courts of Irish princes, but, above all, by the number of early Irish missionaries who devoted themselves not only to the establishment of churches and monasteries in the north-east of England, but curiously enough followed the stream of population from the Straits of Dover through Belgium to the Rhine, that is from the Iccian Sea, of which

there is so frequent mention in Irish MSS. relating to very early times, and to which one Irish prince at least led an expedition. We have another proof of this alliance against the Romanized Britons in the way in which Saxons were received at the schools of Ireland. The hostility of the two peoples appears to have first arisen in consequence of the quarrels between the Irish and Saxon Churches. Political causes helped to develop this hostility as soon as the Saxon dominion extended to the north of England, and the Saxon Kings of Northumbria came into direct contact with the Scotie Kingdom established in Scotland. The wars carried on by the Saxon Kings against the Scots and Piets involved the Irish in the quarrels of their brethren in Scotland, and led to the ravaging of the coasts of Ireland by the Saxons; and Bede in describing an expedition of Egfrid, King of the Northumbrians, against Ireland, under a commander named Beort in 684, adds that it miserably wasted that harmless nation, which had always been most friendly to the English, insomuch that in their hostile rage they spared not even the churches and monasteries. Alcuin similarly describes the same event.

“Præfuit Egfridus regno feliciter annis
Ter quinis faciens victriciabella, quousque
Agminibus missis animo trans æquora sævo
Præcipiens gentes Scotorum cæde cruenta
Vastare innocuas, Anglis et semper amicas,” etc.

(See O'Sullivan on O'Curry's "Manners and Customs of the Irish," etc., 1. xxxv. and xxxvi. Bede iv, c. xxvi, Alcuin Poema de Pont. et Sanc. eccl. Ebor, 835.)

The evidence, therefore, that the Saxons did not spare the Irish coasts when they attacked those of Great Britain is very conclusive. As they do not appear in the old Irish stories under the name of Saxons, however, it is interesting to find out whether they may not be mentioned under some other name. Mr. Skene, who has done so much for early history, pointed out that the people whom the Irish called Fomorians were doubtless the same folk as the Frisians. Fomorians or Pomorians is word for word the same name in form as Pomeranians, as has been pointed out by the learned Bishop of Limerick, Dr. Graves, and it means merely those living in the flatlands by the sea, and is therefore especially applicable to the Frisians. Several of the old Irish writers, as may be seen in O'Flaherty's "Ogygia," etc., call them Africans, and as Mr. Skene says, it is a remarkable fact that Procopius similarly calls the Frisians Africans.

The various notices of them in the Irish legends show they came from the neighbourhood of Scandinavia and were of Teutonic origin. In confirmation of this view, I may quote from Professor O'Curry, who says of them: "The Fomorians appear to have been rovers, tribes from Norway, Sweden, and

Finland, who crept down the Baltic and the coast of Norway and swarmed over the Orkneys, Shetland, and the Hebrides. They are said in our old histories and genealogies to have been of the race of Cam, son of Noah, and to have fled hither from Africa. They appear to have been the forerunners of the Vikings of later times ; if indeed the race and propensities of those adventurers did not come down unbroken from the remotest times to the battle of Clontarf."

Mac Firbis classes the Fomorians with the Lochlanns or Scandinavians and the Saxon Galls in one of his works on old Irish genealogies. In another he devotes a chapter to them in company with the Lochlanns and Normans. I quite agree with the views here urged by Skene and O'Curry, and as these are by no means familiar facts, I have collected together such references as I could meet with about the Fomorians, culled from the old Irish heroic tales, etc.

Keating says of them :—"Those African pirates called Formhorauc were the descendants of Shem. They fitted out a fleet and set sail from Africa, and steering towards the Western Isles of Europe, they landed on the Irish coast. Some time after they arrived, the Nemedians engaged them in three bloody battles and defeated them. The first of these battles was fought at Sliabh Blaidhmia, the second at Ross Fraochain in Connaught, where Gan and Geanan were slain, the two principal commanders of the Africans. The third battle at Murbuilg in Dailreadah, where Starn, the son of Nemedius, was killed by Conaing, the son of Farbhar. In a fourth battle, the bloodiest and most desperate of all, fought at Cuambrius in Leinster, Nemedius and his forces, which were most of the men he had in his kingdom, were cut to pieces. Among the slain was Arthur, the son of Nemedius, born in Ireland, and Jobhchon, the son of his brother Starn. This broke the heart of Nemedius, who died shortly after, with 2,000 of his people, at a place called Oilean arda Nemhid, now Barrymon in the county of Cork.

"On his death the Africans pursued their victory and completed their conquest of the country and made the people tributary. They fixed their chief settlement at Torinis, also called Tor Conaing, where More, the son of Dela, and Conaing, the son of Faobhar, who gave its name to the island, ruled. The tribute of the Nemedians was annually collected at a place called Magh Goceidue, between Drobhais and Eirne, on the 1st of November. They took two parts of their children, their milk, butter, and wheat, which was collected thus : They employed a woman as tax collector, who compelled each family to pay three measures of wheaten meal, three measures of cream and three of butter every year. Magh Goceidue means the plain of compulsion."

The Nemedians, unable to bear the oppression any longer, rose in revolt and slew Conaing with all his children (Keating, 31–34).

Professor O'Curry describes in greater detail the struggle with Conaing. He says:—"During the revolt of the Nemedians, More, the son of Dela, was absent in Africa, but he returned soon after with 60 sail and fought a desperate battle with the Nemedians. The battle was fought on the strand, and was so hotly contested that neither side observed how the tide was flowing in until both were surrounded, so that many of those who escaped the sword were drowned."

More and what remained of his men managed to get on their ships, and they afterwards succeeded in conquering the island. A large number of the Nemedians then withdrew from the island under three chiefs, while the wretched remnant of the people lived in servitude to the Fomorians till the arrival of the Firbolgs. (*Id.*, 34 and 35.)

The Fomorians came under a valiant leader, named Conaing (? Kunung), son of Faebhar (? corruption of ap Ivar), and took possession of Tory Island, on the north-west coast of Donegal. This they fortified and converted into a kind of citadel or depôt, whence they plundered the Nemedians on the mainland. Driven to despair, the latter at length assembled all their people, men and women, on the mainland, opposite Tory Island, whereupon we are told the Fomorians sent their Druids and Druidesses to confound them. Under an arch-Druidess, named Reilbeo, the wife of Nemid, a fierce contest of blows and spells ensued, in which the Fomorians were defeated, and in a general fight which followed, their fortress on Tory Island was destroyed and their chief, King Conaing, and his sons were killed (O'Curry, ii, 184 and 185). Presently, however, More, son of Dela, another Fomorian chieftain, returned with sixty ships and re-occupied Tory Island, and renewed the oppression of the Nemedians. Another battle followed, in which there was a great mutual slaughter. More and a few of his followers alone escaped to the island, and but one ship of the Nemedians, with only thirty warriors and three leaders, escaped to the mainland (*id.* 185). Tory is merely *Tor ey*, *i.e.*, *Tor inis*, or *Tor Island*, the island of the tower or fortress; and this use of the Teutonic "ey" for an island shows again that the invaders were Teutons.

Keating tells us that the palace of King Nemedius was built by four famous Fomorian builders, named Bog, Robhog, Rodan, and Ruibhne. They were called Fomorians, he says, because they were a sort of pirates or sea robbers that came originally from Africa. The next morning, after their work was done, Nemedius ordered them to be killed, lest they should build other buildings

exceeding his in beauty. They were killed at Doire Lighe and there burned. (*Id.* 31.)

One of the most famous of the heroic tales of the ancient Irish is that known as the Fate of the Children of Tuireann, translated by Professor O'Curry, in the *Atlantis*. This contains some very interesting notices of the Fomorians. In it we read that at the time the Tuatha de Danans were tributaries of the Fomorians, they laid a tax on the kneading trough, the quern, and the baking flags, and a poll tax of an ounce of gold upon every nose of the Tuatha de Danan, and this was extorted annually; anyone who refused to pay had his nose cut off.

Presently a deliverer came in the presence of Lugh of the Long Arms, who had been a great traveller, and returned home with a number of companions, opportunely, as eighty-one of the Fomorian tax collectors were about to proceed to their work. We are told four of them were called Eine (*i.e.*, Ina), Eath-faid (Eadfred), Coron, and Compar. Lugh fell on these publicans and killed seventy-two of them. The remaining nine he spared and allowed to return home. They set out, we are told, for the country of Lochlainn (*i.e.*, Scandinavia), where the Fomorians were, and they related to them what had happened, and Balar asked if they knew who Lugh was; Ceithliome, Balar's wife,* said she knew: "He is a daughter's son of yours and mine, and it is presaged and prophesied that when he shall go to him the Fomorians' power there should come to an end." Then the chief men of the Fomorians went into a Council.

Eab Seanchab, the grandson of Neid and Sotal Salmhor; and Luaith-Leabharchaim, and Tume Mor of Triscadal, and Loisgum Lomghimeach; and Luaith Luaimneach, and Lobais the Druid; and Liathlabhar, the son of Lobais; and the nine deeply learned poets and prophetic philosophers of the Fomorians, and Balar of the Stout Blows himself, and the twelve white-mouthed sons of Balar and Ceithleann the Crooked Toothed, Balar's Queen.

And it was then Breas, the son of Balar, said "I will go with seven valiant and great battalions of the horsemen of the Fomorians into Erin, and I will give battle to the Joldhanach" (a term by which Lugh was designated. He was a kind of Admirable Crichton, and was thence called Joldhanach, *i.e.*, master of all arts), "and I will cut off his head and I will bring it to you upon the green of the Lochlainn Berbhe."† "It would well become

* She was present in the second famous battle of Magh Tuiredh, to be mentioned presently, and so injured Daghdha that he died. Mr. O'Curry suggests that the name Inis Ceithleann, now Imiskillen, in the county of Fermanagh, is derived from her.

† Dr. O'Curry says, this was the name of the chief city of Lochlainn, mentioned in several of the Irish romantic tales, but whose position he could not fix. It is elsewhere called Berge. Can the name be connected with Bergen in South Norway?

you to do so" they said, and then Breas added, "Let my ships and my swift barks be made ready for me, and let food and stones be put into them." This was done, and Luaithhueach (*i.e.*, the Swift Storyteller) and Luaithleatharcham (*i.e.*, the Swift-bodied) were sent to assemble the army, and when they had come together, and were duly equipped, they set out for Erin.

"And Balar followed them to the port and said 'Give battle to the Joldhanach and cut off his head, and tie that island which is called Eire (*i.e.*, Ireland) at the sterns of your ships and let the dense verging water take its place, and plant it upon the north side of Lochlainn, and not one of the Tuatha Dé Danann will ever follow it there.'

"Then they pushed out their ships and swift barks from the port, and they filled them with pitch, and with frankincense and myrrh; and they hoisted their sliding variegated sailing cloths, and they made a sudden start from the harbour and the shore-port, along the land that is not cultivated, and out upon the wide lying sea, and upon the wonderful abyss, and upon the ridge backs of the deluge, and upon the wet high cold-venomed mountains of the truly deep ocean, and they never slackened from that sailing course until they reached harbour and shore port at Eas Dara (now the village of Ballisadare on the river Uinshin, in the barony of Leney and the county of Sligo), and the King of Connacht at this time was Bodhbh Dearg, the son of Daghdha."

The strangers now proceeded to devastate Connaught. Meanwhile Lugh went to have an interview with them at Magh Mor an Aonaigh (*i.e.*, the great Plain of the Fair, its site is not known), where they were camped with their plunder.

Then arose Breas and said, "It is a wonder the sun should rise in the west to-day and not in the east as on other days." "It had been better had it been so," said the Druids. "What then is it?" said he. "The radiance of the face of Lugh of the Long Arms" was their reply.

When Lugh saluted them he told them he was but half a Tuath de Danann, being a Fomorian by his mother's side, and he then, we are told, cast a druidical spell over the cattle they had harried, and sent its own milch cows to every house in Erin and left them the dry bones, and having waited for his forces and put on his armour, Lugh and his people attacked Magh Mor an Asnaigh, and the foreigners joined battle with them and they cast the spears at one another, and when these were shivered they drew their broad-edged gold crossed swords from their blue bordered scabbards, and Lugh, seeing Breas, the son of Balar, surrounded with his warriors, rushed at him, and two of these body-guards were killed. Breas then demanded

quarter and promised to bring the Fomorians over to the battle of Magh Tuireadh; quarter was granted to him accordingly, and he was allowed to go with his Druids. The battle to which he promised to come is known as the second battle of Magh Tuireadh.

The second or northern battle of Magh Tuireadh, more commonly called the battle of Magh Tuireadh na b'Fomhor (*i.e.*, the Plain of the Towers or Pillars of the Fomorians), is very famous from the heroic narrative which has reached our day in regard to it, and which is quoted by Cormac in his Glossary as early as the ninth century. It was fought between the Fomorians and the people called Tuatha Dé Danann. The latter were governed by Breas, who was a Fomorian by his father's side, but a Tuatha Dé Danann on his mother's. He encouraged the invasions of the sea rovers, we are told, so that they succeeded in laying heavy tribute on the Tuath Dé Dananns. The latter, after conspiring secretly for three years, rose in revolt and drove away their King Breas, replacing him by his predecessor, Miadha, who, having lost his arm, had been disqualified from ruling, but had now recovered from his wound and even, according to the legend, had a silver arm made for him by the silver-smiths and surgeons of his people. The Tuatha Dé Dananns also prepared a great store of spears and swords for the coming fray. Breas, when he was constrained to resign the throne, went with his mother to the court of his father, Elatha (? Ella), who, we are told, was at this time the great chief of the Fomorian pirates, who swarmed all over the German Ocean and ruled over the Shetland Isles and the Hebrides. Though he received his son coldly, Elatha nevertheless furnished him with a fleet and army to enable him to reconquer his position in Ireland, and was recommended by him further to the great Fomorian chiefs, Balor of the Evil Eye, King of the Islands, and Indech, son of De Dannand, and they collected all their armaments so that they are said to have formed an unbroken bridge of ships and boats from the Hebrides to the north-west coast of Ireland. Having landed there they marched to the northern Tuireadh, situated in the parish of Cell Nitrie Trena, and the barony of Tirerrill, in the county of Sligo (O'Curry's Lectures, 249; "Manners and Customs," iii, 213), a place surrounded with hills and rocks and narrow defiles. "Besides Meada of the Silver Hand, the chief men of the Tuatha De Dananns at this time were the great Daghdha, Lug, son of Cian, son of Deancecht, their great Æsculpius; Ogina Grean Ameach (of the Sun-like Face), and others, but the great Daghdha and Lug were the prime counsellors and arrangers of the battle." The account goes on to state how these two summoned their smiths, their cerds, or silver and

brass workers, their carpenters, their surgeons, their sorcerers, their cupbearers; their druids, their poets, their witches, and their chief leaders; and there is not, perhaps, in the whole range of our ancient literature, a more curious chapter than that which describes the questions put by Lug to these several classes as to the nature of the service which each was prepared to render in the battle, and the characteristic professional answer which he received from each of them (Lectures 249). The same accomplished author has abstracted the answers given by the smiths, the silversmiths, and the carpenter. The first of these replied: "Though the men of Erin should continue the battle for seven years, for every spear that falls off its handle and for every sword that breaks, I will give a new weapon in place of it, and no erring or missing cast shall be thrown with any spear that is made by my hands, and no flesh into which it will enter shall ever taste the sweets of life after; and this," said he "is more than Dubh, the Fomorian smith, can do." "And what will *you* give in the battle, Creiduc?" said Lug to the gold and silversmith. "This," said Creiduc, "rivets for spears and hilts for swords, and bosses and rims for shields shall be supplied by me to all our men."

"And you, Luchtine," said Lug to the carpenter. "This," said Luchtine, "a full sufficiency of shields and of spear handles shall be supplied by me to them." ("Manners and Customs," etc., ii, 249.) Here we gather that the shields were then made of wood with metal bosses and rims, etc.

The Fomorians were astonished when they saw the arms of their enemies. "They saw their own arms," says the story, that is, their spears and swords, "injured and useless after the fight; but it was not so with the Tuatha de Danann, for if their arms were rendered useless to-day, they were in perfect order for battle the next day, because Goibun the smith was in the forge making swords and javelins and spears and he made these arms by three turns, or spells, and they were perfectly finished by the third turn. And Luchtine made the spear handles by three chippings, and the third chipping was a finish.

"When the smith had finished a spear-head," says the tract, "he threw it from the tongs towards the door-post, in which it stuck by the point, and then Luchtine the carpenter had the handle ready and threw it so accurately that it entered the socket of the spear, and became so exactly fixed that it required no further setting"!!! Creidin the Cerd also made the rivets by three turns, and the third turn was a finish, and then he pitched them from his tongs into the holes in the socket of the spear, so as, without further boring, to pass through it, and the

handle fastening them so firmly as to require no further attention !!! etc.

The Fomorians sent out a man to spy out the enemy's camp; his name was Ruadan, and he was the son of Breas of the Fomorians, but his mother was Brigh, daughter of Daghdha the great chief, and champion of the Tuatha de Danann, and on the strength of this relationship he gained free access to their camp. He reported the operations of the smith, the Cerd, and the carpenter, and was told to return and kill the smith. He returned therefore, and obtained a spear-head from the smith, rivets from the Cerd, and a handle from the carpenter. He then took it to a woman named Cron, the mother of Fianlugh, whose occupation it was to grind the arms on a whetstone. She ground the spear for Ruadan, who thereupon threw it at the smith and wounded him, but the smith withdrew it from his own body and threw it back at Ruadan, through whose body it passed, killing him on the spot. (*Op. cit.*, 249 and 250.)

In this battle the only weapons named were the Sligh, or long-pointed javelin for throwing the fogha or short spear, the Saighead bolgh or belly dart, the claidheamhach or sword, and the Lic tachné or sling-stone (*id.*, ii, 295). The last of these is mentioned in an interesting passage of the tale. We are told that during the heat of the battle the Fomorian chief and warrior Balor was dealing fearful destruction among the Tuatha de Danann, not more by his sword and spear than by his "Evil Eye," which he generally kept covered, but which he exposed during the fight. Among those who were struck down by this was Meada of the Silver Hand, the King of the Tuatha de Danann, and the Lady Macha, daughter of Erumas, after whose deaths Balor again closed his eye. Thereupon the champion Lugh went up to him, and denouncing his cruelty, threatened him with instant death. Thereupon Balor opened the lid of his Evil Eye. When Lugh saw it move, he darted a sling stone at it and drove it through his skull, whereupon Balor fell dead among his people (*id.*, 251). We are told that among the Fomorians there was not a man who was not supplied with a "*lorica*" on his body, a helmet on his head, a manais or broad spear in his right hand, a heavy sharp sword at his girdle, and a firm shield at his shoulder. The swords are spoken of as tooth-hilted swords, *i.e.*, hilted with the tusk of the sea-horse. They are also described as charmed. Thus we are told that in the fight Ogma the champion obtained Ornai the sword of Tethra, King of the Fomorians; Ogma unsheathed the sword and cleaned it. "Then it related all the deeds that it had performed, and it is therefore," says the old tract, "that swords are entitled to the tribute of cleaning them whenever they are opened. It is

on this account, too, that charms are preserved in swords, from that time down. Now the reason why demons were accustomed to speak from weapons at that time, was because arms were worshipped by the people in those times, and arms were among the tutelary protectors of those times." (*Id.*, 254.)

As a pendent to the above description of the armature of the soldiers on either side, may be added the following description of Eladha, King of the Fomorians, who after the battle appeared suddenly before a Tuatha de Danann maiden in Con-naught, dressed as follows: He had golden hair down to his two shoulders; he wore a cloak braided with golden thread, a shirt interwoven with threads of gold, and a brooch of gold at his breast emblazoned with precious stones. He carried two bright silver spears with fine bronze handles in his hand, a shield of gold over his shoulders, and a gold-hilted sword, with reins of silver and paps of gold. And we are told that on parting he left the maiden his ring of gold, which he took off his middle finger. (*Op. cit.*, iii, 155 and 156.)

The battle ended in the complete defeat of the Fomorians, who retired from the field under their surviving leader Breas, who had been captured, but obtained his liberty by a stratagem. (*Id.*, 213.)

We have other notices of the Fomorians. Thus we are told in the book of Invasions that Rath-Ciun-Eich (*i.e.*, the Horse-head Fort), was built in one day by four Fomorian brothers, who were condemned by Nemhedh as prisoners or slaves to do the work, but who were put to death again the next day, lest they should demolish the work again. (*Id.*, iii, 3.)

One of the famous legendary Kings of Ireland was Siorna, who for a while dispossessed Lugair, the son of Lugaidh, of the throne of Munster. The latter appealed to the Fomorians to go to his assistance. They came in great force, we are told, headed by their King Ceadarn (or Ceasarn), and having been joined by Lugair and his Munster men, fought the battle of Moin Trogaidhe, in which the leaders on either side were killed. On this battle an old poem survives:—

"The battle of Moin Trogaidhe in the East,
In which the Fomorians were cut down,
He who fought it at the swelling hill,
Was Lugair, the son of Lugaidh Lamh-fhind.
He from whom Moin Trogaidhe is named,
Was Trogaidhé, the tutor of the young warriors of Erin,
And even of the Fomorians too
Before the fight of this great battle."

(*Id.*, ii, 356.)

In another story about the Fomorians, we read how when the famous hero Cuchullain was on a journey to Ireland, he landed

at Reclrainn (now Rathlin) Island, "where he found a beautiful girl sitting alone on the beach. On asking her why she thus sat there, she replied she was the daughter of the King of Reclrainn, that her father was annually compelled to pay a large and rich tribute to the Fomorians or pirates, who infested the Scottish Islands; that failing this year to procure the stipulated amount, he was ordered to place her, his only daughter, in the position he now saw her, and that before the night she should be carried off by the Fomorians. While this conversation was actually going on, three fierce warriors of the Fomorians landed from their boat in the bay, and made straight for the spot in which they knew the maiden awaited them. Before they had time to lay rude hands on her, however, Cuchullain fell on them and killed them all, escaping himself with but a slight wound which the maiden bound up," etc., etc. (O'Curry, *Lectures*, etc., 280 and 281.)

The facts here collected are not, I am aware, arranged in complete order. The vein I have here followed is almost a virgin one in British ethnological reasoning, and I have little doubt that when more fully explored, a rich result will reward the inquirer.

These facts, however, make it certain that Scotland and the North of Ireland were overrun probably in the middle of the fourth century by a large number of invaders, whom we identify as Frisians or Jutes. These invaders have in our view left a memorial of singular interest and importance in Southern Scotland, namely the Catstane. This famous monument has been illustrated with singular learning and ingenuity by Sir James Simpson, by Mr. Skene, by Professor Daniel Wilson, and others, and all are agreed that it is a perfectly genuine monument. It is situated in the parish of Kirkliston, on the farm of Briggs, in a field on the north side of the roads to Linlithgow, and between the sixth and seventh milestones from Edinburgh. It is a massive unhewn block of greenstone trap, like similar boulders in the district. Its height above the ground is 4 feet 6 inches, it is about 4 feet 5 inches in width, and 3 feet 3 inches in thickness. Sir James Simpson had the ground about it excavated, and found that its total length was 7 feet 3 inches. It rests on a basis of stones, which apparently once formed a built-up grave, but which has long since been rifled. A century and a half ago it was surrounded by a circular range of large flat-laid stones. The stone is known as the Catstane or battle-stone. Upon the stone is an inscription, which all the most competent lapidary authorities known to me who have examined it pronounce to be perfectly genuine, and to be of that peculiar debased Roman style which prevailed in the fourth century. It was first published so long

ago as 1699–1700, in the “*Mona Antiqua Restaurata*,” in a letter to Rowlands, the author of that work, from the well-known Welsh antiquary, Humphrey Llwyd, and has been since frequently copied. (An elaborate paper upon it, showing great learning and ingenuity, was published in the 4th volume of the “*Proceedings of the Society of Antiquaries of Scotland*,” p. 119, by Sir James Simpson.) The inscription is as follows: “IN OC TUMOLO JACIT VETTA F VICTI.” For a complete palæographical commentary on the inscription I must refer to Simpson’s paper just cited, and will at once turn to the person commemorated. The two names are clearly not Roman, nor are they Celtic, and the question remains whether they are Teutonic, and about this there can be no doubt. Vetta or Witta occurs in the “*Traveller’s Tale*,” as the ruler of the Swafs or Suevi. The name Witta is still in use among the Frisians. The tenth Bishop of Lichfield in Florence of Worcester’s list, is Huita, called Hweicca or Hweitta, by Simeon of Durham. His death is mentioned under the year 775, in Florence, and he is then called Witta. But we can go further. Vitta was the name of Hengist’s grandfather. In the “*Historia Britonum*,” which in my view contains the oldest recension of the Saga of Hengist, he and Horsa are made the sons of Guichtgils, the son of Guicta, the son of Gucta (Grime’s ed., 18). These names occur here in their Welsh form. The Anglo-Saxon Chronicle gives them as Hengist, the son of Wihtgils, the son of Witta, the son of Vecta (Earles’ “*Parallel Chronicles*,” 13). Bede uses V instead of W in the corresponding passage. Here then we find not only that Vitta and Vecta were good Teutonic names, occurring in a good Teutonic genealogy, but that Vitta occurs as the son of Vecta, just as he does on the stone. This most remarkable coincidence in such rarely-occurring names, has led such cautious antiquaries as Simpson, Skene, etc., to suggest that the Vitta, son of Vecta, of the inscription, is no other than the grandfather of Hengist, and I confess that I do not see how this conclusion is to be gainsayed, and I accept it as at least tentatively sound.

In the Irish Nennius, the name Vitta is variously written Guighte and Guite. This has led the same antiquarians to connect the name with the city of Guidi, mentioned by Bede, which was situated in the midst of the Friesicum sinus or Friesic gulf. His Urbs Guidi thus becomes the town of Vitta. Again, one of the divisions of the Picts, mentioned by Ammianus in the year 368, was the Vecturiones. It has been suggested that the Vecturiones were so named from Vecta, the father of Vitta, who was probably a famous chieftain and leader, and who gave the race its name, in the same way that the leaders of the Scotch and Irish clans and septs did, and as the Irish traditions declare the leaders of the Dalriadians and Cruithne or Picts did.

Lastly, it is not uninteresting to find that Vit is the name given to the Jutes by Bede, and it may be that Vit is derived from Vitta, as Vecturiones is from Vecta.

I have therefore come to the opinion that in the fourth century, and before Hengist and his people had settled in Kent, Jutes, under the leadership of Hengist's ancestor, were already planted in the South of Scotland and the North of Ireland. If the arguments here used about the Catstane be deemed conclusive, and if we assign the year 368 for the approximate date of Vecta's presence in Scotland, we may with more confidence perhaps accept the position of the "*Historia Britonum*," and of Geoffrey, that the Saxons against whom St. Germanus fought were the Jutes of Hengist, and that the Hallelujah victory in 429 was in fact won against him and his people after the flight of Vortigern. Let us now examine the Saga about Hengist.

Gildas, Nennius, and Bede are agreed that the strangers came in three cyulis, *i.e.*, keels or long ships, and that they were commanded by the two brothers, Horsa and Hengist. Gildas says they were invited by Vortigern, in which he is followed by Bede. ("*Mon. Hist. Britt.*," 13 and 121). Nennius, who doubtless preserves the older as he does the completer version of the story, informs us that they had been exiled from their country (*op. cit.*, ed. Gunn, 18). While Geoffry of Monmouth adds that, like the later Norsemen, they went into exile in consequence of the national custom, by which, their country being overstocked with people, the youth were assembled together, and choice made by lot of such as were strongest, and they were thereupon constrained to emigrate, and chose Hengist and Horsa as their leaders. Geoffrey reports the conversation which took place between them and Vortigern, in which they said they worshipped Saturn and Jupiter and Mercury, whom they called Woden and Freya (*op. cit.*, ed. Giles, 116 and 117). All this seems probable enough. Nennius tells us the invaders landed in the Isle of Thanet, at the mouth of the Thames, a famous trysting-place of the later pirates. The later Anglo-Saxon Chronicle and Ethelwerd add that they landed at Hypwinesfleet, which is doubtless to be identified with Ebbsfleet, where was probably one of the two fords across the Wantsum (which separates Thanet from the mainland), mentioned by Bede, the other being doubtless at Wade (Guest, *Arch. Inst. Sal.*, 53, note). Ebbsfleet is still the name of a farm-house on a strip of high ground, rising out of Minster marsh, in the Isle of Thanet. It is now some distance inland, but it was evidently at one time a promontory running out between the estuary of the Stour and Pegwell Bay. The tradition that "some landing" took place here, is still preserved at the farm, and the field of clover which

risers immediately on its north side, is still shown as the spot. (Stanley's "Memorials of Canterbury"; Murray's "Guide to Kent and Sussex," 210). St. Augustine is said to have landed at the same place, as is also St. Mildred, the great Saint of Thanet, showing that Ebbsfleet was the ordinary landing-place in the island, and so confirming the tradition contained in the Chronicle.

We are told the strangers were welcomed by Vortigern, who explained to them how he was harassed by the attacks of the Picts and Scots, and promised if they would assist him to make them a grant of land. To this they assented. At this time it would seem that the Picts were engaged in ravaging the northern parts of the island, and the allies marched against them. Geoffrey says they marched against them beyond the Humber. Henry of Huntingdon, who seems to preserve some other British traditions, tells us the Picts and Scots had advanced as far as Stamford in the south of Lincolnshire, where he places the site of the battle in which the Saxons were victorious. Geoffrey adds that in reward for their services they were granted large possessions of land in Lindsey (part of Lincolnshire) (*op. cit.*, 118). Mr. Haigh suggests that in this campaign the Saxons coasted round the island from Thanet to the Nen, and landed near Peterborough, and he suggests that Horsey Hill, about two miles from Peterborough, commemorates the success of Horsa on this occasion ("Conquest of Britain," 209). If we are to credit the statements of Hector Boece, the Saxons not only defeated the invaders in England, but pursued them into Scotland, and ravaged the Merse and Pentland, and defeated the Pictish army in a famous struggle. (*Id.*, 210 and 211).

To return to more sober chroniclers, we are told by Gildas, Nennius, and Bede, that after his victory, Hengist sent to Germany for reinforcements. Pleased with the fertility of the country, he had determined to remain here, and his people soon became exacting. Gildas says they complained that their monthly pay was not given them, and threatened to devastate the island if they were not more liberally treated. Nennius says that when their numbers were greatly increased, and the Britons could not feed them, as was their wont, they demanded food and clothing. To their request the latter answered, "Your number is increased, your assistance is now unnecessary, you may therefore return home, for we can no longer support you." This, of course, was no part of Hengist's policy, and we are told that shortly after a fresh fleet of 16 keels arrived, bearing, *inter alios*, Hengist's beautiful daughter (Nennius, 22). Her name is not given in the text of the oldest version of the "*Historia Britonum*," nor in fact in the text of any of the copies. It

occurs only in the capitula attached to the Cambridge MS., which, according to the late Sir Thomas Hardy, is a very inferior MS., and abounding in interpolations. It dates from the end of the twelfth century. In these capitula, which I take to be of no authority whatever, the daughter of Hengist is called Rourwen. It is probable that this name has been taken from Geoffrey of Monmouth.

It has been well said that the name is not Teutonic, and in fact it occurs in two old genealogies as the name of a Celtic ancestor of the kings of Scotland ("Chron. of the Picts and Scots," 134 and 144). But it seems to me that the mistake can be traced. We are told that the British name of Thanet, which was granted to Hengist, was Roihin (Nennius), which is also given with various readings as Ruoihin, Ruoiachim, Ruoichin ("Mon. Hist. Britt.," 63). The name survives, according to Dr. Guest, in Ramsgate. I believe the name Rowena, as applied to Hengist's daughter, has been created out of a misunderstood reference to this local name, a position which is strengthened when we find that a considerable district in Wales also bore the name *Rowenanc*. (See "Annales Cambriae" sub ann., 816, and Brut y Tywysogion, sub ann., 817, "Mon. Hist. Britt.," 834 and 844). It will be noted that Geoffrey of Monmouth does not mention Thanet as granted to Hengist, which makes it very probable that he mistook its British name for a personal one.

On the arrival of this reinforcement, the Saxons invited Vortigern and his officers to a feast, which was also attended by his interpreter Ceretic. Some of the later copies of the "Historia Britonum" have Certeselmet, a mistake arising out of the confusion of Vortigern's interpreter with Ceretic, the petty regulus of Elmet or Leeds, who was, more than a century later, defeated by Edwin of Northumbria. The late copy unfortunately followed by Dr. Petrie in the "Mon. Hist. Britt.," also adds that Ceretic was the only Briton who understood the Saxon language, a phrase which does not occur in the early recension of the text published by Mr. Gunn, and which seems to be a marginal gloss that has crept into the text. Hengist ordered his daughter to ply his guests liberally with wine and mead, and we are told by Geoffrey that making a low curtsy she approached Vortigern, and said "Laverd king wacht heil" (i.e., "Hlaford conung wacht heil"), ("Lord king, your health"). When Vortigern saw her he was much enamoured, and asked the meaning of the phrase from the interpreter, who explained it, and bade him reply "Drincheil," upon which he took the cup from her hand, kissed her, and drank himself (*op. cit.*, ed. Giles, 120). This anecdote, preserved by a British tradition, and with the correct form of words, greatly strengthens, as Mr. Haigh says, the probable truthfulness of

the whole narrative. Having at length got drunk and being madly in love with the fair stranger, he asked her in marriage from her father, promising through the interpreter to give Hengist whatever he should ask. Hengist having consulted with his companions, demanded the province called Ceint by the Britons and Centland or Centwaraland by the English. Dr. Guest explains Caint or Cent as meaning the open country as distinguished from the downs farther west, which were known as Gwent ("Proc. Arch. Ass. Sal.," 32). To this Vortigern agreed, and the province was made over to the strangers without the consent of the regulus who reigned there. The term used here is "guoranogono," which has been read by Geoffrey and others as a personal name Guorangan, but as Camden long ago showed, Guorong means a viceroy, and Langhorn accepting this interpretation, treats the word as a generic one for deputy or petty regulus, a conclusion followed by Mr. Gunn (*op. cit.*, note 86). What strengthens this view is that Kent being the very nucleus of the Old Saxon shore, it is probable that the personal name of its chief at this time would be Teutonic. Vortigern now married the Saxon princess. After this, we are told, Hengist addressed Vortigern, and said "I will be to you both a father and an adviser; despise not my counsels and you shall have no reason to fear being conquered by any man or any nation whatever, for the people of my country are strong, warlike, and robust; if you approve, I will send for my son and his brother, who at my invitation will fight against the Scots, and the people who live in the north, near the wall called Guaul" (*op. cit.*, Gunn 23-24). Here Ochta and Ebessa are called brothers, so they are called in one place by Geoffrey of Monmouth (Giles ed., 122), but in another place where Ebessa is called Essa, he is spoken of as Ochta's kinsman (*id.*, 165). In other copies of the "*Historia Britonum*" he is spoken of as his "fratuelis" (*i.e.*, nephew), and not brother ("Mon. Hist. Britt.," 66). In the "*Brut. Tyssilio*," Ossa is called Ochta's uncle (Gunn, *op. cit.*, note 87). In the *Capitula* attached to the later copies of Nennius, he is called the son of Horsa, and therefore the cousin of Ochta ("Mon. Hist. Britt.," 50). In the Irish Nennius, Ebessa is called the son of Ochta's mother's sister (*op. cit.*, 89). The balance of evidence goes to show that he and Ochta were in fact cousins, as Mr. Haigh has concluded.

Vortigern assented to Hengist's proposal to send for his relatives, and we are told they accordingly were invited. The "*Historia Britonum*" tells us they came with forty ships. Geoffrey that they were accompanied by Cherdich (*i.e.*, no doubt by the Ceretic already named), whose knowledge of the Saxon language shows he was in some way connected with the invaders. He

says they came with 300 ships. We are told they sailed round the country of the Picts, laid waste the Orkneys, and occupied many regions to the confines of the Picts (*op. cit.*, Gunn's ed., 24). Later MSS. describe the regions so attacked as being beyond the Fresic sea (one copy says "trans Mare Frenessicum" "Mon. Hist. Britt.," 66). This phrase apparently formed no part of the original narrative, and was a later explanatory gloss. The statement that they sailed "*round* the country of the Picts," and the mention of the Orkneys, shows that the districts in the west of Great Britain on the Irish Sea were ravaged by them. The term "Mare Fresicum" may, however, merely mean the Irish Sea. The Irish Nennius explains it as the sea north of the Gaidheal (*i.e.*, of the Irish), and Ireland was probably the land of the Scots in the eyes of Nennius.

We are told they occupied many regions near the Guaul and as far as the Pictish confines, and it would seem that the land ceded to them was south of the Firths, and probably in the Lothians.

The island fortress of Guidi in the Firth of Forth, which is mentioned by Bede, and which, as we have seen, has probably some connection with the Jutes, was perhaps a relic of their occupancy. We shall revert to these northern invaders presently; meanwhile let us turn once more to Hengist. We are told he continually invited fresh bodies of his countrymen to come over and settle in Kent, so that the islands whence they came were left vacant. Geoffrey tells us the Britons now began to get alarmed, and "the number of those who had come was now so great that they were a terror to his subjects, and no one could now know who was a pagan, or who a Christian, since pagans married the daughters and kinswomen of Christians. They accordingly remonstrated with Vortigern, who was, however, infatuated with his new friends, The Britons thereupon deposed him and set up his son Vortimer in his place. We are told he fought fiercely against the Saxons, whom he drove out of their conquests. He fought several battles with them. The "Hist. Britt." says four, but it only describes three: the first at the River Derwent, which has been identified with every probability with the Darent in Kent (the Cray joins the Darent in the marshes, just before it falls into the Thames). Thence Langhorn has argued with some probability that this battle is the same as the one mentioned in the Anglo-Saxon Chronicle in the year 457 as having been fought at Crecganford (*i.e.*, Crayford, near Dartford). The Anglo-Saxon Chronicle assigns the victory, however, to the Saxons, who are variously said to have slain four troops, or 4,000 men of the Britons. Thereupon the latter forsook Kent and retired to London. The leaders of the Saxons are called

Hengist and Aesc his son ("Mon. Hist. Britt.," 299; "Earle's Parallel Chronicles," 13). But this account, as I have said before, does not seem to me to be so trustworthy as those in the British writers. The second battle was fought, according to Geoffrey, at Epifford, which the "Historia Britonum" gives more correctly as Episford, the form the name has in the Anglo-Saxon Chronicle. Tysillio gives the name in a Welsh translation as "Rhyd y Pysgod" (*i.e.*, the ford of the fish, Gunn, *op. cit.*, note 102), while the "Historia Britonum," adds that the place was known as Sathenegabail or Rithergabail ("Mon. Hist. Britt.," 69). These forms are both doubtless corrupt. Dr. Guest explains the name as "Syddin y eenbail," (the house of the ford). This place was called by the Britons "Saisenaeg babail," because the Saxons were slaughtered there (Gunn, *loc. cit.*). In this battle we are told in the "Historia Britonum," and by Geoffrey, that Horsa, the brother of Hengist, and Katigern, the brother of Vortimer, were killed. The latter implies they killed each other in single combat. In the Anglo-Saxon Chronicle the battle where Horsa was killed is dated in 455, before the battle of Crayford. The site of it is called Aeglesthrep in the Chronicle and by Ethelwerd, and Ælestren by Henry of Huntingdon, which is identified tentatively by the editor of the "Mon. Hist. Britt." with Aylesford. The latter place, which is named in later Saxon days as Ægelesford, probably derived its name from the Latin-Welsh Eglwys, a church, and meant the church ford. Dr. Guest says Aylesford church probably occupies the same site as the Welsh Eglwys, and is situated on the top of the bank overhanging the village, and its remarkable position explains the propriety of the names Aeglesford, Aeglesthrip or Aehlestren, the church ford, village, or cross (*op. cit.*, 47). Kemble explains it as compounded with the name Eigil or Egil, the mighty archer of the Northern Sagas. Bede tells us that the site of the battle was in the east of Kent, and was marked by a monument bearing the name of Horsa. At Horsted, two miles north of Aylesford, a heap of flint stones is still pointed out as his grave (Murray's "Kent," 181). Horsted in Sussex and Horsham in Kent possibly also retain traces of his name.

Horsted is not the only reputed relic of the fight near Aylesford. Near that town is the famous cromlech known as Kits Coity house, which has been pointed out as the burial place of the British chieftain Catigern, who fell in the same battle. Kitts hill and Kite's house on Dartmoor are similar names given to ancient tombs, which disturb the value of the plausible etymology, and Kits Coity has been otherwise explained as derived from Ked Coity, the "hollow in the wood." A wood once overspread the hill-side and of it some venerable yews remain. The cromlech, we are

further told, is the centre of a group of monuments which it is supposed were once connected with a similar group in the parish of Addington. Near the cromlech is a large chambered tomb, in the hollow below which is a slab called the "coffin stone," while the hill above is strewn with small cromlechs surrounded by stone walls; while many circular pits with chambers at the bottom, like those at Cisbury and some filled up with flints, occur along the brow of the chalk hills on either side of the river. Many British coins have been found there, while we are told a boulder on the top of the hill (now destroyed) was formerly known as the white horse stone "and pointed out as the place on which Hengist after the death of Horsa at Aylesford was installed as first King of Kent" (Murray's "Kent," 183).

This shows how legends grow and get distorted. Whether the cromlech and the heap of flints mark the respective graves of the British and Saxon chiefs or no, there can be no hesitation in accepting Aylesford as the site of the battle, and these numerous remains, as well as those of a Roman cemetery and a villa which was destroyed by fire, existing close by the town, prove that the site was a famous one, a position which is at once appreciated when we find it was situated at the lowest ford on the Medway.

The third struggle, we are told, was fought near the stone on the shore of the Gallic Sea, where the Saxons being defeated fled to their ships (Gunn, *loc. cit.*). Other MSS. of the "Hist. Britonum" give the name of the place as "Lapis Tituli." This has been identified with some probability with Stonar; Stánáre, "the stone of honour," being the equivalent of Lapis Tituli (Haigh, *op. cit.*, 241). Stonar was once the commercial rival of Sandwich, and is situated about a mile below that town. It was totally destroyed by the French in 1385. The name still survives in a farm-house, while the foundations of the church and adjoining buildings may be traced amidst a clump of trees (Murray's "Kent," 156). It is now included in the Isle of Thanet, but was formerly apparently separated by a wide channel from the island. It is close to Ebb's fleet, and the fight there is clearly the same as the one mentioned in the Anglo-Saxon Chronicle as having been fought at Wipped's fleet in 465, where we are told 12 British ealdormen were slain, while one of the Saxon thanes named Wipped (the eponymos of Wipped's fleet) also fell. After this defeat the Saxons took to their ships, and according to Geoffrey, retired to the Isle of Thanet, where Vortimer pressed them hard. It must be remembered that the Wantsum was passable for ships of burden sometimes, so that it is probable the ford could only be crossed *on foot* at ebb tide. This explains their taking to their ships (Guest, *op. cit.*, 53, note). Vortigern, it would seem, was all this while living with the invaders, and we are told he was

now sent by them to Vortimer to request permission for them to embark quietly homewards. While a conference was being held on the subject they went on board their long galleys, and leaving their wives and children behind them returned to Germany (*op. cit.*, Giles, 123). Thus concluded, according to the British authorities, the first campaign of Hengist in Britain, and the account seems in every way probable and much more credible than the disjointed Anglo-Saxon notices. The latter claim victory after victory for their people, and yet 18 years after the landing of Hengist (*i.e.*, in 465), and after the Britons, as we are told, had retired from Kent and taken refuge in London, we find them actually fighting the Saxons at Wipped's fleet, the very place where they landed originally; but all becomes quite clear if we follow the British accounts. They acknowledge that Kent or a large portion of it had been made over to the invaders by Vortigern, and then go on to tell us how in one battle after another they were driven back until they were finally ejected from the island. In this campaign Vortimer was probably greatly aided by the Old Saxon colonists of the Littus Saxonium, who having shared in some of the culture of the Roman world and settled upon its soil were doubtless also little inclined to tolerate the strangers. The campaign was also in all probability a sharp one and not distributed, as the Chronicle would make out, over 18 or 20 years—a statement in unison with the artificial chronology which it follows.

The "*Historia Britonum*" tells us that shortly after these events Vortimer died. Tyssilio and Geoffrey accuses his stepmother Rowena of having hired a man to poison him. Boece makes out that the British nobles were accessory to her crime (Gunn, note 104; Geoffrey, *loc. cit.*). We are told that before his death he ordered his friends to bury his body at the entrance of the Saxon port, and at the rock where the Saxons first landed, for though he said they may inhabit other parts of Britain yet if the Britons followed his commands they would never remain in this island (Gunn, 30). Geoffrey, who has apparently somewhat misunderstood the notice he translated, says Vortimer ordered a brazen tomb to be built, and makes it appear it was the tomb which was to frighten the enemy (*id.*, 124). We are told the Britons imprudently disobeyed Vortimer's commands and neglected to bury him where he had commanded (Gunn, 30); a late copy of the "*Hist. Britt.*" says they buried him at Lincoln ("*Mon. Hist. Britt.*," 69). Tyssilio and Geoffrey both say at London.

On the death of Vortimer we are told that Hengist once more returned. Geoffrey says that Vortigern having recovered the throne, sent him an invitation on the advice of his wife and bade him come with only a small retinue so as not to arouse

suspicion; but he set out with an army of 300,000 (!!!) men and a vast fleet, and calling his leaders together he consulted with them as to the stratagem they might employ against Vortigern and his army. They sent messengers to him with promises of friendship which were correspondingly met by Vortigern. On pretence of ratifying the treaty, the Saga tells us that Hengist invited the king, his nobles and military officers to the number of about 300, while he ordered 300 of his own people each to conceal a knife in his stocking. When the Britons were sufficiently drunk he told them he would cry out "Nemed eure seaxes" (*i.e.*, "Take your knives again")—a good Teutonic phrase, speaking well for the authenticity of the legend; when each man was to draw his weapon and kill his companion. The king was to be spared, inasmuch as he was his son-in-law and his ransom might be worth a good deal. The feast took place, and we are told Hengist's companions followed his commands, and 300 of the Britons were laid low. Geoffrey says 460 British chiefs, and that they were buried by St. Eldad near the Monastery of Ambresbury in the neighbourhood of Salisbury. Vortigern was made prisoner, and we are told purchased his redemption by surrendering the three provinces of East, South, and Middle Saxe, besides other districts at the option of the invaders ("Mon. Hist. Britt.," 70, note 14). The last sentence is singularly confirmatory of the arguments we have previously urged that Sussex, Middlesex, and Essex were not founded by independent bands of settlers, as the English Chronicle falsely avers, and shows that they were integral parts of the old kingdom of Kent from which Essex was only detached in the days of Ethelbert. Geoffrey says the invaders, after the massacre at the banquet, took London, York, Lincoln and Winchester, wasting the country through which they passed terribly. On the retirement of Vortigern the Sagas make him be succeeded by Aurelius Ambrosius, who came from Armorica with a large force to succour his countrymen. Geoffrey tells us he fought a battle against Hengist at Maesbeli. In this fight Eldol, who is called the Duke of Gloucester and who had escaped from the recent massacre fought with great bravery. Hengist and his people were defeated and retired towards "Kaerconan, now called Cumingeburgh," says Geoffrey. Near the town another battle was fought. In this fight Gorlois, Duke of Cornwall (?), distinguished himself and Eldol engaged Hengist in single combat. He seized Hengist, we are told, by the helmet and dragged him by main force among the Britons and then shouted out in great joy "God has fulfilled my desire, my brave soldiers. Down, down with your enemies the *Ambroons*, the victory is now in your hands! Hengist is defeated and the day is your

own." They accordingly pressed the invaders hard and the Saxons fled wheresoever they could find shelter, some to the cities, some to the woods on the hills and others to their ships; but Octa, the son of Hengist, made his retreat with a great body of men to York, and Eosa, his kinsman, to the city of Alclud, where he had a very large army for his guard ("Geoffrey of Monmouth," 150-153). Geoffrey says that Aurelius now captured the city of Conan and then called a council to deliberate as to what should be done with Hengist. At this council, we are told, Eldad, Bishop of Gloucester, brother of Eldol, insisted that he should be hewn in pieces like Agag, which Eldol accordingly carried out. "But Aurelius," says Geoffrey, "showed moderation in all his conduct, commanded him to be buried, and a heap of earth to be raised over his body, according to the custom of the pagans." Thence he went to York to besiege Octa's son there. Feeling that resistance was hopeless the latter went out with his principal chief, carrying a chain in his hand and sand on his head (!!) and said, "My gods are vanquished, and I doubt not the sovereign power is in your god who has compelled so many noble persons to come before you in this suppliant manner." On the advice of Eldad mercy was shown them and they were allowed to settle in the country. After this Eossa and the rest who had fled, being encouraged by Octa's success, came also and were admitted to the same favour. The king therefore granted them the country bordering upon Scotland and made a firm covenant with them (*id.*, 154 and 155). Whatever the value of this legend, I am firmly convinced that it was no invention of Geoffrey's, but was the genuine Saga, of which a shorter recension is contained in the "*Historia Britonum*." The story of Hengist's final defeat and of the expulsion of the Jutes from Kent is confirmed by the remarkable fact that the Royal House of Kent was not named after him as its patronymic, but was styled that of the Aescings, after a prince who is made his son by Bede and the Chronicle, which makes it probable that there was a new departure with Aesc, while it can be shown from other evidence that Octa and Eosa or Ebessa had a settlement in Southern Scotland and there fought with Arthur, etc.

This is a good halting stage in our journey. We have by no means exhausted the interesting problem of the ethnology and early settlements of the Jutes and shall have more to say about them in another paper. But this one has already extended to an inordinate length, and we can only hope that the new facts brought forward and the interest of the question upon which modern historians are so divided may excuse us. Our next paper will deal with the Franks.

OBSERVATIONS *upon the METHODS and PROCESSES of ANTHRO-
POMETRY.* By Dr. PAUL TOPINARD.

FOR many years it has been my duty as Assistant Director of the Laboratory of Anthropology, of which my lamented master, Broca, was director, to show to the pupils and to travellers the method of taking measurements upon the living body, according to the instructions of the Anthropological Society of Paris. I entered into their troubles, they related to me the difficulties they have experienced, and often, I must say, I have had to which confess that the theory and the practice were not always in accord. Moreover, at the Society I have many times had to make reports upon the rough lists of measurements collected by travellers, and with these I have also had grievous deceptions.

As Professor at the School of Anthropology I have had to compare the proportions obtained by different methods in Europe and in America, and with the most varied reference points (*points de repère*), and here also I have met with many disappointments. Finally, I have measured for myself the skeleton, the living and the dead body; I have sought, and I still seek, how the system may be improved.

I have therefore thought that there might be some interest in submitting to the Anthropological Institute the results of my experience before the Anthropometric Committee appointed by the British Association shall have presented its report.

The greatest part of my course of lectures of 1879–80 has had reference to the canons studied in the arts and in anthropology. I have made a communication to the Society of Anthropology of Paris upon the instruments which I employ,* and I have just published a memoir upon anthropometry in general and upon the proportions of the trunk in particular.†

Anthropometry, since the time of Quételet, means the measurement of the entire human body (living or upon the dissecting-room table) with the view to determine the respective proportions of its parts: 1st, at different ages, in order to learn the law of relative growth of the parts; 2nd, in the races, so as to distinguish them and establish their relations to each other; 3rd, in all the conditions of surrounding circumstances, in order to find out their influence upon the ascertained variations. The systems of proportions imagined by artists from those of ancient India and Egypt down to the present time bear the name of

* Bull. Soc. Anthropol., 1880, p. 269.

† "Revue d'Anthropologie," 1880, p. 593.

canons; the types discovered by anthropometry ought to bear the same name. Anthropometry then consists of all those accurate processes which lead to the knowledge of the different canons, according to the ages, the sexes, the races, the surrounding conditions, etc.

Its horizon is therefore considerable, and the types to be established require large series of subjects, in which individual variations shall disappear, so as to leave apparent only the general mean. The small number of skeletons which our museums contain is absolutely insufficient, and living people alone can supply the number indispensable to arrive at any degree of certainty. All our efforts should therefore tend to perfect the methods of operating upon the living, and to simplify them, so as to render them accessible to all—to travellers, officers of the navy, recruiting agents, schoolmasters, etc.

It follows that the number of measurements demanded should be reduced to those strictly necessary, and only those insisted on which are really useful and lead to the knowledge of one of the natural morphological divisions of the body. The more one exacts from a traveller, the more unsatisfactory are his replies. To obtain good measures, one should ask for few. Measurements taken obliquely are wanting in accuracy, so are lengths taken with the tape; they ought then to be abandoned. Heights above the ground, breadths, some circumferences and perhaps the facial angle—to these we ought to limit our demands.

To determine the canon of the proportions of a body is to establish the relation of the dimensions, constant in the same type, of the natural divisions of the body. The intrinsic proportions of each of those divisions comes afterwards, and gives rise to particular branches of the science: cephalometry, pelvimetry, etc. The dimensions to be obtained directly, or by the method of subtraction (as, for example, the height of the middle finger above the ground taken from the height of the acromion equals the length of the upper limb), relate to—

1. The trunk.
2. The head and the neck taken separately.
3. The lower limb as a whole.
4. The upper limb as a whole.
5. Each of the segments of the limbs, the hand, the forearm and the arm in the one case; the foot, the leg and the thigh in the other.
6. The intrinsic proportions of the head (cranium and face with its further subdivisions); of the trunk (shoulders chest, pelvis, hips); of the foot (heel, metatarsus, toes); of the hand.

To find the reference points most exact and least subject to

error, which will best give these dimensions, is the first problem to be resolved.

Anthropometry having for its object (with some exceptions as the volume of the cranium, the height, etc.) not absolute dimensions, since that which is large in one may be small in another of a different stature, but relative dimensions, proceeds only by comparisons. Two methods in this respect claim our preference. In one, inaugurated by White in 1799, and adopted by Broca, the dimensions are compared directly with one another, one being reduced into centesimal fractions of the other; for example, the fore-arm compared with the arm or the maximum breadth of the shoulders with the maximum breadth of the hips. In the other method all the dimensions of the body are compared with one and the same module which in the canons of artists may be the nose, the hand or the finger, but which actually among anthropologists is by unanimous consent, the total height, taken as 1,000.

But the height can be known only very approximatively upon the skeleton; it varies according to the method of mounting and its state of preservation; only in the living subject can the height give a certain element of comparison. This gives a second reason for relying upon, and for perfecting specially the methods and measurements which concern the living.

But if it is only among the living that a sufficient number of subjects can be obtained to lead to a reliable conclusion, and if the certainty of this conclusion is increased with the numbers measured, medical men and anatomists, already occupied by their own avocations, cannot, without help, determine the different canons of humanity in the multiple conditions which we have named.

Anthropometry is then forced to address itself to all the world, and consequently to put itself within reach of all. It must adopt points of reference, simple, easy to be found without anatomical knowledge, and yet true and precise. A measurement well taken, though not exactly corresponding to that which is wanted, is in fact of more worth than an uncertain measurement with errors of 2 to 5 centimeters, as not unfrequently occurs. A measurement which gives variations of more than a centimeter in the hands of an operator of average intelligence ought certainly to be rejected. In anthropology ten good observations do not always counteract one bad one. The difference of one centimeter, which I am here supposing, in any measurement of moderate length, will often equal the maximum of the regular divergence between two different ages, sexes, or races. I have insisted upon this fact in my last memoir published in the "*Revue d'Anthropologie*" upon the "*Mensuration*

du tronc.”* One or two examples will make my idea better understood.

The instructions of the Paris Society direct as the reference point for the inferior extremity of the thigh, the interarticular line which separates the external condyle of the femur from the upper surface of the tibia. The instructions of the Berlin Society prefer to this the external condyle of the femur. The English instructions, edited by Dr. Beddoe, indicate simply the articulation of the knee. The first point is anatomically perfect, but it is only accessible to a practised hand; the second wants precision, and moreover does not represent the actual extremity of the femur; the third is vague. On the other hand the anthropological statisticians of the American Civil War have taken the middle of the patella. To this it has been objected that it is not an anatomical point, and moreover that the patella is movable and changes its place with the contractions of the anterior muscles of the thigh. This is incontestable; but it is easily remedied. Place the subject upright, at ease, without giving him any special directions; wait kneeling before him; as soon as you see that the muscles are well relaxed, mark rapidly the centre of the patella with ink or coloured chalk. Nothing can be more simple.

It is true that the centre of the patella is slightly above the articulation. I have proved upon the dead subject that its lower border corresponds to the anterior border of the upper end of the tibia, but if it is considered of importance, it is easy to correct this difference.

Thus, on the one hand, the anatomical school, that which guides itself by the skeleton, possesses an excellent reference point, the interarticular line of the knee, but one which can only be determined by a professional man; on the other hand, the school which is engaged principally upon the living has a point quickly accessible to every one, but not very logical, since the patella is only a sesamoid bone, and scarcely a part of the skeleton proper. Of the two, I prefer, for the living subject, and in consideration of the difficulties of travellers, the centre of the patella, although I have up to the present time always taken the only exact articular line.

The separation of the arm from the forearm, so necessary for the important antibrachial index, is almost equally difficult to determine. A practised surgeon only can distinguish with the nail, the upper border of the head of the radius; the epicondyle gives considerable variations. On the contrary, the summit of

* “*Etudes anthropométriques sur les Canons. 1^{re} Le Tronc,*” par P. Topinard (“*Revue d’Anthropologie.*” 1880, p. 593).

the olecranon,* and the middle articular fold in front are easy. But they are not logical, or rather they do not give the real length of the two bones wished for.

In anthropometry then there are two kinds of points of reference: the one rational, agreeing with the conformation of the skeleton, answering to the real length of the bones, but which only an anatomist, and in some cases only a skilful anatomist, can determine; the other sometimes quite different, corresponding rather to the external configuration, sacrificing the truth, but not conducing to notable errors in the hands of ordinary persons. When it is impossible to reconcile the two, I maintain without any hesitation that it is anatomical exactitude which ought to give way.

It happens, moreover, that even for the anatomist there is often no means of finding a point upon the living body, corresponding to a particular one on the skeleton. Thus the length of the femur cannot possibly be measured in the same way in the two cases. Neither the head of the bone nor the true upper border of the great trochanter, are accessible to measurement in the living. The anatomist is then forced to make a concession in this case. Why should he not make others when it is necessary?

Precision of the point of reference is the first condition of its value upon the living, and takes the lead of everything else; no one should deceive himself about this. Furthermore, the external proportions of the body clothed with its soft parts, muscles and tendons, deserve to be taken into consideration in anthropometry as much as the dry bones.

The rule of conduct in the choice of reference points upon the living, and consequently the corresponding measurements suitable to make known the dimensions in length and breadth of the body, may be thus summarised. Take the anatomy of the skeleton, the true length of the bones, for a guide as far as possible. Then choose among the points of reference proposed those which allow, by a system of conversion, the measurement adopted to be brought to that required. Thus some anatomists prescribe the upper border of the pubis (a point for many reasons inconvenient in practise) as the limit of the thigh; by adding 42 millimetres for average statures, that is to say, the distance in vertical projection from the pubis to the summit of the head of the femur, the anatomical length of the thigh is obtained. But as soon as it is proved that a reference point is dangerous, that it leads to mistakes, it must be given up, and we must

* When the forearm is flexed in placing the hand upon the abdomen between the umbilicus and the pubis, the summit of the olecranon comes to the level of the inferior extremity of the humerus.

begin once more to examine the external form. I cannot reach the head of the femur ; the great trochanter and the pubis are bad ; I try if the anterior superior iliac spine will suit travellers ; I see objections to it ; I seek elsewhere ! Presently I shall show that there are still two ways of getting over the difficulty, and arriving at a satisfactory length of the thigh or of the lower limb.

There is one consideration which should be thought of in the choice of reference points ; this is the objection the subject may make owing to modesty, fear, or sensibility ; the perinæum for this reason alone ought to be rejected. It is useless to say that one cannot dream of using points subject to displacement, like the ends of the breasts. Nevertheless, we ought not absolutely to condemn purely cutaneous points ; the articular folds in the extension of the limbs are very acceptable ; the commissures also. I am not disinclined to think that the most elevated point of the skin, as apparent to the eye, at the level of the malar bones, ought to be accepted as the best "malar point" upon the living subject.

Upon the skeleton it is anatomical truth which is the criterion ; upon the living it is the manner in which travellers can act in relation to the point proposed. The end to be obtained is uniformity of result in the hands of non-anatomical observers as well as anatomists. In order that a measurement should be good, it is necessary that, repeated ten times by the same operator, or by ten different operators, it gives practically the same figures. For the largest dimensions, the discrepancy permitted should not reach a centimeter ; for the elements of the cephalic index, Broca admits one millimeter ; for the elements of the nasal index of the living, I scarcely admit even so much.

The reference points being settled, the operator has to find them and mark them upon the skin, which is generally not done. How often have I seen in the old method the operator occupied with too many things, his hands encumbered, thinking that he has his finger upon the point, and taking in perfect confidence a measure different from that he intended, because the point has slipped and escaped him. A point of reference exact in one attitude is not so in another. When the arm is extended horizontally, the head of the humerus is carried inside of the glenoid cavity into the axilla, and the arm is shortened by 1 or 2 centimeters. The acromial point is thus made fallacious ; it gives the length of the limb well when it falls vertically ; it does not give it in the horizontal position. The Anthropometric Committee of the British Association ought strictly to forbid all measurements taken otherwise than in the

symmetrical attitude, standing in an easy posture, the arms falling, the legs together, the back and the head straight, looking forwards.

In all cases, extension and flexion change the relative position of the parts, and consequently of the points of reference. Every surgeon knows what errors occur in the measurement of the length of the lower limb, in cases of coxalgia, when the anterior and superior iliac spine is taken. I have made experiments on the dead body upon the articular line of the knee, it becomes displaced in relation to the skin as much as 2 centimeters.

The movements attending respiration are the greatest obstacle to measurement of the chest. Therefore, whatever be the point of reference accepted, care must be taken to place the thorax in a condition intermediate between elevation and depression of the sternum, the ribs and the clavicle—that is to say, intermediate between inspiration and expiration, making the subject count or speak, but in a quiet manner.

There are reference points which determine themselves; such is the seat, that is to say the natural base of the trunk in the living. It corresponds to the bi-ischiatic line of the skeleton. It is sufficient to make the subject sit upon the ground or upon a bench of which the height is taken. This is an excellent point of reference, which the most refractory natives immediately fall in with.

But up to the present time the supreme cause of error is in the apparatus used. I think that at last I have solved this problem.

Of the anthropometer which I use, constructed by Molteni, I have given a description and figure in the bulletins of the Society of Anthropology of Paris, 1880, p. 271, and General Pitt Rivers possesses one. It is of mathematical precision; an application of the process of the double square. A square slides in a graduated rule, kept vertical by a foot at its base, and which can be placed as desired, either before, behind, or on either side of the subject. It serves for all the vertical dimensions from 10 centimeters to 2 meters.*

I have experimented on all the other systems proposed. All, taking into consideration the generally defective manner in which they are practised, give gross errors which render the

* The method of projections for the vertical measurements and the process of the double square which results from it, is now accepted by all the world. It is that which the measurers of the Novara used, when they spoke of the plumb-line, it is that which the Americans have adopted at the very outset by the employment of the anthropometer of Bache. The instructions of the Society of Paris, of the British Association, of the Society of Berlin, are unanimous. The consequence is that the attitude of the body with the arms dropped by the side of the trunk cannot be questioned.

results illusory. I do not trust any of them. The most general fault results from the operator having too many things to superintend at the same time, and from the operation being too long. The subject becomes fatigued, rests upon one hip, lowers one arm more than the other, contracts a muscle, so that there is no unity in the general conditions.

The whole of the operations, as I practise them now, are divided into two periods, between which the subject as well as the operator can rest.

Thus: the subject presents himself; we begin by talking to him, and take some notes upon his hair, the colour of his skin, etc., to give him time to calm his emotion. Then he is undressed, and without any hurry, all the reference points are determined one by one, and marked with ink or a coloured chalk pencil upon the skin. This operation is certainly the most delicate. The subject is placed in the prescribed attitude, the arms by the side, etc. Certain of the points are determined with the fingers pressed deeply into the soft parts; others are obtained by practising alternate movements of extension and flexion; others, as the centre of the patella, are fixed by the sight alone, touching being expressly avoided.

When the point is once found, the fingers are gently taken away, the soft parts and the skin are allowed slowly to retake their place, the limb is put back into the prescribed attitude, and having been careful to make sure for the last time that the point has not escaped, the spot is marked. One is now quite easy. To do all this, a dexterity or *savoir faire* is needed, which can be acquired alone, but which ought to be taught. Therefore every one about to take measurements ought to have seen someone, already accustomed to do so, operate at least once. It is, however, quickly picked up.

The second period is short. The subject having retaken the prescribed attitude, the legs upright, the body straight, the arms close to the side, the head fixed, looking 25 paces forward, and preserving this time a perfect immobility, the anthropometer is placed upon the most convenient side, which may be changed if desired, and, commencing with the vertex, the point of the square is successively carried to each marked point on the body, and the numbers dictated. The subject has time neither to become fatigued, nor to modify sensibly his attitude.

With my portable anthropometer,* in consequence of its

* I have proposed to the Anthropological Institute a still more simple apparatus, and which can be made by the traveller wherever he is. This is a wooden board, about 10 centimeters wide, and 2 meters in height, fixed at its base into a block of wood, heavy, but of small width, so that it may be placed as required on either side or before or behind the subject. Upon this board, a graduated

construction in two principal pieces, there is an interruption between the measure above and those below one meter. But in a school or a recruiting office, the anthropometer not requiring to be portable, may be constructed in a single piece, and the operation will occupy not longer than a minute. With the old process, putting on all possible speed, the same operation requires a quarter of an hour.*

The division of the operations into two periods, the one during which the points of reference are determined and marked at leisure, the other during which the measures are read off, and finally the use of accurate instruments, this is the key of my system.

I should now enumerate the reference points, if not the best at least the most practical, the most easy for travellers who are not anatomists, to which I give the preference. But I must own that I am not definitively fixed upon some of these, and the researches which I have commenced upon this subject are not yet finished.

In a general way, I follow the instructions of the Anthropological Society of Paris. But I recognise that being taken from a purely anatomical point of view, they are not sufficiently at the command of the majority of travellers, and do not sufficiently take external morphology into account. The results of the long experience of artists are neglected in them. The height of the head and the number of times that it is contained in the total height, as well as the divisions of the head upon the median line seen from the front, into four parts, are not recommended in them. They do not insist upon the height of the trunk, which is the centre around which all the other proportions turn. They forget the relations so variable according to the ages, sexes, and races, which there are between the breadth of the shoulders and the breadth of the hips. The method which they indicate for taking the facial angle is out of date.

Of the following points, there is in my opinion no question whatever: Vertex, auditory opening, inferior border of the chin, notch of the sternum, inferior border of the acromion, styloid process of the radius, extremity of the middle finger, umbilicus, point of the external malleolus, base of sustentation in the sitting posture, or seat.

tape is fixed by two drawing pins and a square, of which the two branches meet at their flat sides, travels up and down. General Pitt Rivers possesses a small square of this kind.

* The best process up to the present time was by the double anthropometric board of Broca fixed to a wall, and along which a square slid. But the second square called an "indicator," which accompanied this, the difficulty of getting into a good light, and the fixity of the posterior plane, rendered its management sometimes inconvenient. Then it was necessary to have a truly vertical wall.

As regards the elbow, the knee, and the origin of the lower limb, I must use some reserve. Sappey and Quételet employed the middle of the articular fold, the "bleeding point" in the arm, and the fold of the groin in the thigh. It is very possible that they are right. The Americans have taken the centre of the patella, and they also may have found the truth.

As to the upper limit of the thigh, the great trochanter is certainly bad for vertical measurements, and the anterior and superior iliac spine is far from having the value that is imagined, in fat or even moderately stout subjects. There is a simple method of solving the difficulty, which does not appear to have been thought of; the seat being determined as I have shown in my last memoir published in the "*Revue d'Anthropologie*,"* all that is below will give the length of the lower limbs. I will explain myself.

By making the subject sit down on the ground upright, squarely, the legs parallel and extended, and taking the height to the vertex in this attitude, a measure is obtained which, subtracted from the total height, gives the length of the lower limbs; the same measure, diminished by the height of the head and of the neck, gives on the other hand the height of the trunk (seat to the sternal notch).

My anthropometer gives all the vertical measures, consequently those of the face also, but I think it preferable to take these with a special instrument that I call the cephalometric square, and which I have described in the bulletins of the Anthropological Society of Paris, at the place quoted above. The measurements to which I allude are those which are in vogue in the arts, and which are established by the following points: the insertion of the hair upon the forehead, the middle of the line of the eyebrows, the base of the nose, the interval of the upper and lower incisor teeth, and the point of the chin. They give those proportions of the head seen from the front which are most important for the distinction of races.

By the old methods, these measures or projections were taken by the aid of a square placed against a wall; but whatever one did, the head moved, and the measures were not comparable with one another. In my system the apparatus takes its bearing from the head itself; the operation scarcely lasts thirty seconds, and if the head changes its position a little there is no inconvenience from it; the apparatus follows its movements. The measures are read from above downwards. The only pre-

* "*Etudes d'Anthropometrie. 1^e Tronc*," par P. Topinard (*"Revue d'Anthropologie,"* 1880, p. 593).

caution to take consists in placing the head in such a position that the orbits face the horizon. Formerly, Broca and myself in my "Anthropology" recommended the head to be placed according to Camper's line. We have both given this up; this line raises the head too much. In taking these facial projections, as well as in taking the height, the occiput should not be made to rest, as is always done, against the posterior plane. This movement throws the head too much upwards in brachycephalic people. The head should in all these cases be kept straight, in its natural attitude, the eyes looking to the horizon.

I wish to insist strongly upon the measures of the fore part of the head of which I have just spoken being included in the English Instructions; they give the key to all the physiognomy, as the artists have well understood.

The transverse measurements of the trunk cannot be taken by my anthropometer, nor by my cephalometric square. I use for them a simple sliding compass of wood, upon the model of the *compas-glissière* of Broca, but 80 centimeters in length. These measurements can be reduced to the following:—1, the maximum transverse diameter of the shoulders, the branches of the compass resting upon the external face of the head of the humerus, which the deltoid muscle covers; 2, the maximum transverse diameter of the pelvis, or maximum bi-iliac diameter, embracing the two iliac crests; 3, the maximum transverse diameter of the hips, or bi-trochanteric diameter. The great trochanter, of which the upper limit is indefinite, and which ought to be rejected for vertical measurements, is on the contrary good here, where its external surface is in question.

Among the circumferences one only appears to me very useful, that of the chest, as directed in the English Instructions, and revised by General Pitt Rivers.

As to the facial angle, one process only gives it in a satisfactory manner, the median facial goniometer of Broca, one of the most ingenious instruments which has ever been devised. The most useful summit of this angle is that taken at the root of the median superior incisor teeth. If the traveller is disposed to take a second angle, the summit of this should be placed at the point of contact of the upper and lower incisors. *A propos* of the face, I recommend a measure very easy, and one of the most fertile in Anthropology, for the purpose of classifying races, and which deserves to rank even before the cephalic index. I mean the nasal index taken upon the living. Its elements, to be taken with the compass, are, the maximum width of the base of the nose, taking care not to depress the alæ, and the vertical height of the nose from its base to its root. The formula of the index is:—Breadth : Height :: X : 100.

I cannot leave this subject without speaking of an operation which I recommend to travellers, and which gives excellent results. The natives fall in with it with the greatest facility. It consists in drawing the outline of the hand and of the foot placed flat upon a sheet of paper, with an ordinary pencil, from which a half circumference has been cut away from its whole length. The flat side thus formed follows the contour, but care must be taken to hold the pencil quite perpendicular to the paper, and there are two precautions to be observed :—

1. The fore-arm should be placed so that its axis continues in a straight line with the axis of the hand placed flat. The leg should fall exactly perpendicular to the axis of the foot. 2. In beginning the operation upon the hand, the summits of the two styloid processes of the ulna and radius should be marked by a quick outward movement of the pencil. For the foot the pencil held quite straight should be made to slide from above downwards vertically along the tibia on the one hand, and the fibula on the other. When the tip of each malleolus is reached, the pencil goes beyond it and marks on the paper the place where it falls. The part situated behind the line which unites these two points, and which is perpendicular to the axis of the foot, represents the heel, the length of which in different races it is very important to know.

To sum up: the measurement of the human body with sufficient precision to lead to averages which may be depended upon is a very delicate operation. The differences which the proportions of the body present according to age, sex, races, and surrounding conditions depend upon the smallest quantities. To attain them, the causes of error must be reduced to a minimum. Among the causes some are inevitable; one cannot tell, for example, how much one depresses the skin; for the breadth of the wrist, this gives differences which reduced to proportions of the length of the hand, are rather large. By choosing simple reference points, very easy to be felt or seen, certain of these are diminished; by marking these points beforehand with the chalk, the chances of error are further lessened. Errors from defective instruments should not be allowed to occur.

The three fundamental principles are: determinating and marking the reference points slowly, taking the measurements quickly, and the possession of good instruments. The choice of the reference points is a fourth fundamental principle. In relying exclusively upon exact anatomy, anthropometry is only practicable to anatomists and medical men. But the knowledge of the types of proportions in all conditions of age, of surrounding circumstances, of race, etc., necessitates that the largest number of subjects possible should be made available. I do not

ask such numerous figures as those of the Americans in all cases, but of series of the same nature, at least a hundred individuals. For that it is necessary to appeal to every one, that is to say, to put anthropometry at the command of every intelligent person, it is necessary to simplify it, to ask only what is strictly necessary, and make sacrifices in favour of the most apparent points of reference.

I feel sure, knowing the essentially practical spirit of the English race, that the Anthropological Committee instituted by the British Association will take these principles as the basis of their operations.

MAY 25TH, 1880.

E. BURNETT TYLOR, Esq., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks were ordered to be returned to the respective donors:—

FOR THE LIBRARY.

From Professor AGASSIZ.—Bulletin of the Museum of Comparative Zoology at Harvard College, Cambridge, Mass., Vol. VI, Nos. 5-7.

From the SOCIETY.—Proceedings of the Royal Society, No. 203.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1434, 1435.

From the SOCIETY.—Proceedings of the Royal Society of Tasmania, 1878.

From the SOCIETY.—Mittheilungen der Anthropologischen Gesellschaft in Wien, Band IX, Nr. 11-12.

From the SOCIETY OF ANTIQUARIES.—Archæologia. Vol. XLV, Part 2; Vol. XLVI, Part 1.

From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland, July, 1879.

From the EDITOR.—"Nature," Nos. 550, 551.

From the EDITOR.—Revue Scientifique, Nos. 46, 47.

From the EDITOR.—"Correspondenz-Blatt," May, 1880.

From the EDITOR.—Revue Internationale, No. 5.

The following paper was read—

THE JAPANESE PEOPLE: their ORIGIN, and the RACE AS IT NOW EXISTS. By MR. PFOUNDDES, F.R. Geo. Soc., R. Colonial Inst., R.S. Lit., R. Asiatic Soc., R. Hist. Soc., Folk-lore Soc., Society of Arts, Hon. Sec. of the Nipon (Japan) Inst., etc.

THE origin of the Japanese has very frequently been the subject of discussion and of comment. I resided in Japan for over 13 years, during an eventful epoch of the national history. Having lived the native life amongst the people of all classes, speaking the colloquial fluently, and having dispensed with the aid of interpreters from an early period of my residence, I closely observed their customs and habit of life; and I hope I may be excused if I now essay to make my crude experiences of a very pleasant residence in a most interesting country and amongst a most kind and amiable people, of some utility to those who take interest in the peoples of the Far East.

It is first necessary to consider the geographical position of Japan. We see the Empire of Islands are situate in the North Pacific adjacent to the coast of Asia, in a strikingly similar manner to our own country and its relative position in the Atlantic on the western verge of Europe.

Connected with the Malay Archipelago by series of groups of islands; separated by a narrow strait, with islands in mid-channel from the peninsula of Corea; but a few days' passage from the centre of China, its northern islands touching the Amoor region; a chain of islands connecting with the peninsula of Kamschatka; and another chain running across the ocean to North America. Here we have at least six routes by which Japan has ever been easily accessible, with even the most primitive means of transport, and each from a very widely separated region. As a navigator and as a traveller, it is my firm conviction that in remote ages there was a considerable maritime intercourse in Eastern and other seas. Of this, but spare records have been permitted to come down to us, it is true; but we know that the three and three-quarter centuries that have elapsed, since Europeans first penetrated the long-sought-for and mysterious East, there has been but slight progress in the construction of native vessels. The same stereotyped forms still exist, and it may be reasonably supposed therefore they may have existed for tens of centuries before. The Japanese craft of to-day actually bear the form of the earliest attempts at navigation; these were mere bundles of a rush or flag (a large species of *Eryanthus*).

Waves of immigration; nomad tribes; defeated nations,

fleeing before a ruthless conqueror; and refugees; daring and adventurous spirits even in those early days no doubt existed, all of whom would seek new homes and fresh adventure. Having reached what would at first appear the extreme limit, they would fain settle down, their descendants later on, possibly, roving further, or cast away by wind and wave further and further away.

An enthusiast traced many very curious resemblances between the lost tribes and the Japanese people; but it would be strange indeed if some one had not traced these lost, yet often found, people to Japan.

It is only, therefore, in accordance with a common-sense view that we may presume the Japanese to be a mixed race; but they have not been a frequently conquered nation, though they have quarrelled amongst themselves throughout all time. Successive efforts of Chinese were ineffectual—the elements combined to protect the independence of Japan.

Within historic periods there has never been any important wave of immigration; castaways, refugees, and prisoners, there have been many of. On more than one occasion the aliens have been driven out or exterminated, and the most celebrated ancient diplomats were utterly opposed to foreign intruders.

Similarities, it may be expected, are to be traced throughout the region that Japan forms the centre of; the radius cannot be limited to the immediate vicinity, for we know Japanese vessels have drifted to the shores of California as well as to mid-Pacific and the southern China seas.

The Japanese were great travellers as well as daring marauders. They were the terror of the coast of China formerly. Even in the wars of the Indian Princes in the Malay peninsula they bore a very prominent part. They doubtless fell in with the Arabs (whom we know had even long before the sixth century of our era gained a firm footing in China), and with them voyaged to India and Africa.

The Fusan of Leyland and his predecessors is doubtless Japan: the eminent scholar, Robert K. Douglas, Esq., Professor of Chinese, King's College, is of my opinion in reference to the Chinese characters, thus confirming the early travels to and from Japan. Refugees from China reached Japan when the great wall was erected, writings destroyed, and scholars exterminated. Previous frequent messengers had been sent by the Chinese Emperors in search of the Elixir of Immortality and the Philosopher's Stone.

The native annals commence by claiming Divine origin and ancestry. The myths about pre-historic hero and heroine are of no value to this matter, although intensely interesting; but the

Japanese modestly moderate claim to antiquity, so unlike other Orientals, demand our respect. Passing over the Cosmogony and fabulous period, we find the Japanese commence their era and history about the same time as that of Rome, B.C. 660; the first Emperor, Mikado, or Ruler, established himself, and something like systematic rule, in the vicinity of Kioto not very far from the present treaty ports Osaka—Hiogo. This Jinmu (Divine Warrior) may or may not be a mythical person; some Japanese of high intelligence and considerable culture and extensive information assure me that this family and its followers, ancestors of the present Imperial family, originally travelled to the southward and thence returned, conquered the wild tribes, and introduced civilisation.

For centuries history teems with accounts of efforts to civilise the people, subdue the wild and intractable aborigines, driving them step by step northward. In the second century of the Christian era they were driven beyond the vicinity of the present treaty port of Yokohama and subsequently to the North Island where they still exist and form the bulk of the by-no-means numerous inhabitants under the rule of officials and underlings sent from the centre of government.

The primitive state of nomadic fisher and hunter gradually merged into the more civilised tiller of the soil. The mainland from time to time was visited for the purpose of obtaining teachers of the arts, manufactures, skilled labour, and other civilising influences.

A voyager round the coast, or through the interior, to a lesser extent however, would meet with many local types, showing a strong contrast, and widely diverging types—red hair, very wavy and curly, dark brown and black hair; brown shades of eye and peculiarities of *physique* would be met with. The women of the east coast are notorious for the fairness of their complexion, those of the vicinity of Nagasaki for refinement of feature. The men of the far south are peculiar, and form both physically and mentally a strong contrast with those of the northern provinces.

How far localities that have been visited by foreigners, whether Chinese, Corean, Malayan or European, exhibit any traces of infusion of foreign blood, it must be left to exact and more scientific research to determine. Mrs. Matilda Chaplin Ayrton contributed a very able paper to the "Faculté de Medecine de Paris" recently, that is worthy of attention; exact measurements are given that will be of great value to students.

To judge from the people as they are, we must analyse the crude material, and divest it of its superabundant dross; I will therefore detail some peculiar customs and name some important points.

Marriage is not in reality confined to certain castes, families or tribes, nor is it a matter of mutual selection or individual choice. Frequently arranged when the principals are infants, often settled before either party has any knowledge of the other, it is usually a mutual family matter of convenience, expediency, or policy. Concubinage was permissible, especially where the lawful spouse proved barren, but to a limited extent.

The fiction was kept up that the handmaiden must be of gentle birth, but when a girl of humble origin attracted attention by her physical beauty or mental ability, there was no difficulty in finding some complaisant gentleman to father the girl, and give her a nominal title to gentle birth. In any case, once the mother of a child, she took up a well understood and defined position by no means undignified. Thus the arbitrary standard of female beauty must have become in time an important factor in moulding the somewhat homogeneous type of the ruling class and noble families, and we would seek in vain for the family peculiarities so strongly marked in many European families.

The head of the family having the right of selection, chose his heir; those who were not deemed fit to become the head of a family had little chance to gain a settled home.

Indiscriminate intercourse was only known to the men of the lowest type. Women of loose morals did not abound outside of the localities within which they were confined by a government that, finding that it could not obliterate the vicious side of nature, essayed to control it within limits, for the general weal.

The more heinous crimes are not unknown, it is true, but the Buddhist priesthood have been the great sinners, while certain youthful follies are happily almost unknown in Japan.

The absence of entire privacy in Japanese life, while it deadened the more refined feelings, yet had its compensating points. A Japanese gentleman had apartments separate from those of the women, and formerly much ceremony was observed in their intercourse. The manhood of the race is most marked; there is but little of what we know as mannishness. Homes are not broken up, lives irretrievably ruined, or families disgraced. The exuberance of animal spirits of the young men of Japan finds a safety valve, and vents itself in a direction less injurious to society.

It is true, however, that in Japan, as in other countries, youths often disappoint their early promise, after having reached a certain age. The selection resting entirely with the male, produces the results that might be expected. Large families are not common; it is true there are instances of women having a numerous progeny. I know of some who have borne from 9 to 12, and reared the majority.

The social relation of the sexes, the position of the wife, of parent and child, master and servant, each to some small degree affect the question as to the causes that have produced the existing race, and the very marked distinction between the class that has hitherto ruled, and the various local types of the common people.

There has been for ages a peculiar class or, I may say, caste (like the Cagots of Old France), excluded from residence or intermarriage with the people, and doomed to the vilest occupations. Whether these are the descendants of Corean prisoners or not, they are by no means an inferior people, mentally or physically, notwithstanding the enforced close inter-marriage and abject social position. That they are valiant they proved some years ago when called out to fight the rebels.

The food of a people for tens of generations may be worthy of consideration. Rice is not the universal staple, although the inhabitants of the great cities mainly depend upon it; there are many districts where it is almost unknown, and in the districts even where it is grown, it is a luxury—a dainty dish for festive occasions. Rice is to the Japanese tiller of the soil what the pig is to the Irishman: it pays the rent, and is equally respected.

Fish is plentiful, yet the poorer classes have the most meagre portion, just as a relish (like the Irishman's "potato and point" of famine time); salted or dried, it finds its way to the towns and the interior. Vegetables, barley, wheat, buckwheat, yams, sweet potatoes and other esculents are the staple articles throughout the islands.

The wild boar, the ape, and a variety of game furnish food to the sparse inhabitants of the mountain districts. Salted vegetables, preparations of malt, curiously preserved fruits, &c., form innumerable relishes.

The clothing, giving but partial warmth and protection, and the habitations, should be mentioned. The posture indoors is more important, having a marked effect on the development of the figure, and the lower limbs, the ankle, instep, knee, &c.

Frequent hot bathing, scrubbing the body with bags of rice offal, and the callous portion with pumice stone, marriageable women blackening the teeth with a preparation mixed with a sulphuret and water that has decomposed in a pot containing iron nails, and many other habits, may be of interest, if they do not even materially bear upon the race and its present state.

Speaking from having experienced such a want, I would suggest that the various scientific bodies combine and issue a manual of inquiry, properly classified and systematized. Hundreds of intelligent persons would be induced to spend profitably time now wasted or misused, with a most valuable result to the cause of scientific research.

DISCUSSION.

Mr. HOLT asked what were the dragons' claws mentioned by the lecturer, and if they were kept in the shrines as sacred objects. He also inquired if the Japanese produced only grotesque pictures; all he had seen were more or less of that character. From their photographs the natives seemed rather a stolid race, but judging from their works of art they must be a nation of buffoons.

Mr. PFOUNDÉS remarked that the grotesque and humorous sketches so commonly seen are not the only phase of Japanese caricature or of pictorial art. They are poetic and tragic as well; their art is reduced to a system that is very perfect in its classification, but it is in their loving picture of nature and its poetry that they excel; although their sketches of human nature are grotesque and often inartistic in detail they are true to the life.

"Demon's Claws"—Mr. Pfoundés produced a sketch, and at the request of Mons. Terrien de la Couperie endeavoured to explain the various readings of the Chinese characters. There is first the vulgar or colloquial rendering of the idea into the Japanese tongue; then there is the classical pronunciation of scholars, doctors, and classical poetical metre, and thirdly the pronunciation of the priests. The natives give various and conflicting statements as to the origin and growth of these readings, but they probably arise from the Chinese literature having been received from far distant parts of the Continent and at long intervals; being further modified by long ages, euphony, convenience, and the totally different natural mode of speech of the Japanese and Continental races.

ANTHROPOLOGICAL MISCELLANEA.

ANTHROPOLOGICAL NOTES.

NECROLOGY.

IN addition to the great loss our science has sustained in the death of Dr. Paul Broca,* we have also to record the loss of another French worker who also laboured in our common field.

Dr. D. A. Godron, who died at Nancy on the 16th August last, though best known as a botanist, had also made some contributions to the science of Ethnology. From a "Liste des principaux ouvrages," published by Dr. Bonnet in "Le Naturaliste," we extract the following:—

"Étude ethnologique sur les origines des populations lorraines," 1862.

"Des origines ethnologiques des populations prussiennes," 1868.

"Mémoire sur des ossements humains trouvés dans une caverne des environs de Toul," 1864.

"L'âge de pierre en Lorraine," 1868.

RECENT LITERATURE.

"CATALOGUE OF THE SPECIMENS ILLUSTRATING THE OSTEOLOGY AND DENTITION OF VERTEBRATED ANIMALS, RECENT AND EXTINCT, CONTAINED IN THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND." By W. H. FLOWER. Part I, Man: *Homo sapiens*, Linn. (1879).

It was in 1853 that the last "Catalogue of the Osteological Series" (comprising only the specimens of existing species) was published, and Anthropologists will rejoice that the vast cranial additions made to the Museum since that time, have not only now been catalogued up to the date of this publication, but that the work has had the more than efficient services of Prof. Flower. It is not, however, as a mere catalogue that this work will be consulted, for its introductory portion is a complete guide to all who would wish to begin the study of craniology and understand its method, whilst the tables at the end give the reliable material for which one so often searches in vain when desiring to study the cranial diversities and cerebral capacities of the different varieties of mankind.

As regards the method pursued in measuring these crania, we have

* We have the satisfaction of stating that Dr. Topinard succeeds Dr. Broca as Secretary-General of the Society of Anthropology at Paris. A memoir and portrait of Broca will appear in the next number of our Journal.

the author's own supplementary statement in "Nature" vol. xxi, p. 249. In taking the horizontal circumference the "Instructions Craniologiques" drawn up by Broca and published by the French Anthropological Society have been followed; whilst with regard to the important measurement of the antero-posterior diameter of the cranium, Prof. Flower decided to adopt the plan used by Rolleston in "British Barrows," by Barnard Davis in his "Thesaurus Craniorum," and by the majority of German Anthropologists.

Appended to the notice of each cranium is a record, where possible, of all the ascertainable facts in reference to the way in which it was acquired, and also remarks as to peculiarities of osteological structure. One remark is very pregnant. In reference to the skull of a Sheshaht-Indian slave woman we read, "on account of her servile birth her head had not been distorted." This would surely discountenance the idea of the similarity of the remains of the peer and the peasant, at least among these people, and the Sheshaht-Indian aristocracy must be a peculiarly favoured one.

The tables at the end of the work are most interesting and give what, to some, must be surprising results. The highest cerebral capacity (*Megacephalic*) are those of 17 *Dolichocephalic* Eskimo who average 1546 cub. centims, next to which come 24 *Mesati-cephalic* English (most y of lower classes) av. 1511 cub. centims. Amongst other notorious indigenous heroes whose skulls are contained in the museum are those of Jonathan Wilde, cap. 1425 cub. centims; and of Eugene Aram, cap. 1400 cub. centims; both of these coming just in the *Mesocephalic* range of capacities. The smallest (*Microcephalic*) cerebral capacities are 5 *Dolichocephalic* Veddahs who only average 1259 cub. centims and 6 *Brachycephalic* Andamanese who average 1266 cub. centims.

This catalogue will be frequently consulted by cranial statisticians and by all who are impelled to cranial research.

"EARLY MAN IN BRITAIN AND HIS PLACE IN THE TERTIARY PERIOD."

By W. BOYD DAWKINS, M.A., F.R.S., F.G.S., F.S.A., London: Macmillan and Co., 1880.

The fourth edition of Lyell's "Antiquity of Man" bears date 1873; the fact that an interval of only seven years intervenes between that publication and the present work, which again is somewhat a sequel to the same author's "Cave-hunting" which appeared in 1874, seems proof positive that this side of Anthropology is neither neglected, forsaken, nor lacks its apostles. And whereas the increased number of prehistoric and archæological workers writing in different tongues and in more or less inaccessible publications to the ordinary reader, renders the study more diffuse, and the results less able to be assimilated by the non-specialist, a work like the above supplies a need and becomes a handbook to inquirers. It is doubtful whether Prof. Dawkins himself really appreciates all the responsibility of such a book, and perhaps it

is well if he does not. Anthropology is becoming rapidly more and more, as far as its principal achievements are concerned, a portion of our current ideas and an appreciated factor in our literature; and so judging from the past we may reasonably anticipate in the future that "leading articles" "polemical reviews" and "encyclopædic productions" will not fail to be based on material supplied by this storehouse of early facts and conclusions in a way and direction that would probably not altogether recommend themselves to the author.

Prof. Dawkins demonstrates that the Tertiary Period in Europe may be divided into six well defined stages as pointed out in his work on "Cave-hunting."

	<i>Characteristics.</i>
<i>I. Eocene, or that in which the mammalia now on the earth were represented by allied forms belonging to existing orders and families.</i>	<i>Living orders and families present.</i>
<i>II. Miocene, in which the alliance between living and fossil mammals is more close than before.</i>	<i>Living genera.</i>
<i>III. Pleiocene, in which living species of mammals appear.</i>	<i>Living species.</i>
<i>IV. Pleistocene, in which living species are more abundant than the extinct. Man appears.</i>	<i>Living species abundant. Man appears.</i>
<i>V. Prehistoric, in which domestic animals and cultivated fruits appear, and man has multiplied exceedingly on the earth.</i>	<i>Man abundant. Domestic animals. Cultivated fruits.</i>
<i>VI. Historic, in which the events are recorded in history.</i>	<i>Historical record.</i>

Each of these periods is dealt with separately, the whole evidence for or against man's presence judicially investigated and sifted, the case summed up and a conclusion given.

Amongst the very many interesting speculations and conclusions in this work, one which is sure to draw attention is when the author in concluding his third chapter on the Miocene Period decides that there is "no proof of man in Europe in the Miocene age," and in discussing the opinion to the contrary put forth by Dr. Hamy, M. de Mortillet and others, founded in part on splinters of flint found in Mid-Miocene strata at Thenay and on a notched fragment of a rib of an extinct kind of *Manatee* (*Halitherium*) found at Pouancé, remarks that if these be artificial, he would suggest "that they were made by one of the higher apes then living in France rather than by man."

"FOSSIL MEN AND THEIR MODERN REPRESENTATIVES." An attempt to illustrate the characters and condition of prehistoric men in Europe, by those of the American Races. By J. W. DAWSON, LL.D., F.R.S., F.G.S., &c. London: Hodder and Stoughton, 1880.

This work is written in a different spirit and with different aims to Prof. Boyd Dawkins' great work on the same subject. Principal Dawson clearly states this on the penultimate page of his book: "My object, as stated in the first chapter of this work, has been to bring the testimony of facts relating to the existing or recently extinct tribes of America, to aid in correction and counteraction of the crude views prevalent among European archaeologists as to the origin and antiquity of the prehistoric men of the caves, gravels and peats, of the Eastern Continent. The treatment of the subject has naturally been meagre and imperfect; but it will have served its purpose if it has been suggestive of lines of thought in harmony with higher views as to the origin and destinies of men than those which spring from monistic and materialistic hypotheses of the spontaneous evolution of consciousness, reason and morality from merely animal instincts." The book is full of most interesting illustrations, and written in a clear and pleasant manner, but whether it will carry convictions to those with whose views the author does not agree, is a question perhaps beyond our province to ask or answer.

"THE FOLK-LORE, MANNERS, CUSTOMS, AND LANGUAGES OF THE SOUTH AUSTRALIAN ABORIGINES, GATHERED FROM INQUIRIES MADE BY AUTHORITY OF THE SOUTH AUSTRALIAN GOVERNMENT." Edited by the late Rev. G. TAPLIN, of Point Macleay. 1st Series. Adelaide, 1879.

In the year 1874 a circular and letter was received by Sir A. Musgrave, then Governor of South Australia, from Dr. Bleek, of Cape Town, proposing that, as inquiries had been made and interesting information elicited respecting the manners and customs—and especially folk-lore—of the aborigines of South Africa, similar inquiries should be instituted about the aborigines of South Australia. This suggestion was adopted, and on the

suggestion of Mr. Taplin a series of questions were prepared and distributed to all the keepers of aborigines' depôts throughout the colony, and to all persons who were known to be acquainted with the manners, customs, and languages of the aborigines. Twenty-four of the circulars of questions were filled up and replied to, and these form the material for the present volume, which we may hope is really, as the title states, only the "first series."

In discussing the origin of these people, Mr. Taplin well remarks that "autochthony remains a word only," and he inclines to the opinion that "the weight of evidence is in favour of their identity with the races inhabiting the continents and archipelagoes to the north and east, where we find the same system of kinship, the same customs, the same mental characteristics, and the same kinds of sorcery." It is not, however, for theories that this book will be valued and consulted, but rather for its mass of useful and in some cases most valuable information.

In discussing the fecundity of the Narrinyeri, fresh evidence is given for the denial of the exploded but lingering statement that if a woman has a half-caste child she never has another of her own race; and the results of the free use of tobacco by these women as stated at p. 47 is very curious, and will require corroboration before it can perhaps be made a "rule absolute"—"When a woman smokes a great deal during her pregnancy the child which she bears is always excessively fat. Such a child will resemble one of those little fat Chinese pigs, so abnormally fat will it be. Often a native woman is complimented on the plumpness of her baby when it arises solely from this cause. But to a person accustomed to see native children this fatness is known to be peculiar in its character. The child is round and bloated and unhealthy, although so fat; and in every instance such infants have died. I never knew one that survived the troubles of dentition and weaning."

Among the "Dieyerie" tribe cannibalistic practices of the most disgusting description are reported to take place as part of the funeral rites; the reason assigned being that "the nearest relatives may forget the departed and not be continually crying."

The following is the order in which they partake of their relatives:—

"The mother eats of her children.

"The children eat of their mother.

"Brothers-in-law and sisters-in-law eat of each other.

"Uncles, aunts, nephews, nieces, grandchildren, grandfathers, and grandmothers eat of each other.

"But the father does not eat of his offspring, or the offspring of his sire."

Other rites, which it would only be an insult to the rest of the animal world to call brutal, as they practise nothing of the kind, may be found fully described, such as the "ceremony of initiating the youths into manhood," p. 99; "circumcision," p. 79, etc.

Some interesting observations are made on the hair of these people. "They are a very hirsute race. Almost all have long

beards and moustaches, and the whole body of the men is covered with hair. Old men who have never worn clothes are especially hairy. The women, after they have left off child-bearing, generally have more or less whiskers. I have known women with whiskers of which many a man would be proud. They recognise this as a sign that they will not have any more children, and I think they are right."

The work is well illustrated; many excellent photographs of natives and their manufactures being given. It also abounds with philological notes, and contains a Grammar of the Narrinyeri Tribe of Aborigines. We heartily agree with and reiterate the last words of the editor's preface—"The writer commends the following pages to those who seek for truth respecting the human race, and who would gather up every contribution which may cast light upon the natural history of mankind."

"DIE ETHNOGRAPHISCH-ANTHROPOLOGISCHE ABTHEILUNG DES MUSEUM GODEFFROY IN HAMBURG." Ein Beitrag zur Kunde der Südsee-Völker von J. D. E. Schmeltz und Dr. med. R. Krause, Hamburg. L. Friederischen and Co. 1881 (*sic*).

The publishers in their prospectus of this Catalogue state that the scientific matter comprised therein has exceeded even the expectations of the editors, and has now grown to such an extent and importance that they do not hesitate in rather calling the volume a "Handbook of Ethnography and Ethnology of the South-Sea Tribes."

"The catalogue is arranged in geographical order, beginning from Australia. Each part begins with a more or less detailed description of nearly all the islands of the Pacific Ocean, exhibiting them from the view of the geographer as well as that of the naturalist, and ends with a detailed description of the ethnographical objects of the museum, viz.—(a) objects of religious worship; (b) clothing and ornaments; (c) weapons and arms; (d) utensils, musical instruments, etc." To these are added bibliographical and sometimes critical notes.

The following may be taken as one example included in Sect. XIII, "Der Archipel Viti," "Clubs."

"2159 bis 65 aus dem Innern von Viti-Levu."

"Wilkes, Vol. III., p. 343 and p. 262 (*nach unten gerichtete Keule rechts*). Christmann II., p. 157, Fig. b. Specht, Taf. VI., Fig. 2 (*Nicht sehr gut!*) Klemm., Fig. 44. Klemm., Kultrugesch Vol. IV., Taf. IV., oberste Figur. Curaçou, oberste Fig. rechts auf Taf. bei. p. 222. Delessert, p. 192, Fig. 52. Williams, p. 59, 2. Reihe, mittlere Fig."

The work is illustrated with 46 plates, and furnished with an ethnological map divided into "Polynesian, Mikronesien and Molanesien," regions.

"WHO ARE THE SCOTCH?" By JAMES BONWICK, F.R.G.S. London: David Bogue, 1880.

This little work is written in a popular style, published at the small price of one shilling, and written with a distinct object—"to present in a condensed form an interesting ethnological question." It forms one of a series, "Our Nationalities," of which the first "Who are the Irish?" has already appeared.

When we reflect that the business of this Institute is to investigate, collect, and spread the truths of Anthropology, we cannot but rejoice to see that one of our members is taking such efficacious means to further the result.

"MANUEL DU VOYAGEUR." By D. KALTBRUNNER, Member of the Geographical Society of Geneva. Zurich: J. Wurster and Co., Publishers, 1879. Paris: C. Reinwald and Co.

"AIDE MÉMOIRE DU VOYAGEUR." Same Author and Publishers, 1831.

We have here two substantial volumes of about 800 and 500 pages, in which the author provides an elaborate and carefully-prepared manual for the use of scientific and other travellers into the still partly-unexplored regions of natural and social phenomena. The observant student receives full and systematic instruction in the collection of facts; and the directions given of how and what to observe, investigate, digest, and record, are such as travellers of ordinary intelligence and acquirements will be well able to act upon; excellent models for their guidance being liberally scattered through the work.

M. Kaltbrunner commences by describing the physical and mental requirements of the student of nature. He need not be an athlete, but should undergo some preparatory muscular training. He need not be a *savant* or a universal genius; but some time should be spent in general preparation and study in the particular branch of science the intending traveller has in view. He should also endeavour to acquire some facility in the use of such instruments as may be required.

The author's remarks on these preliminary preparations are judicious and minute. But, inasmuch as the manual is also intended for the use of amateur tourists, and other persons to whom a journey is but an accessory diversion from their ordinary avocations, the chapters devoted to this subject, which occupy nearly 130 of the opening pages, could not well have been curtailed without sacrificing some of their admirable completeness.

As an example of the author's method we give the following outline of some of the headings under which the various branches of scientific inquiry are arranged.

The traveller, once fairly started on the journey, is required to give the precise geographical position, limit, and extent of the country he is visiting; its topography, geology, &c. The mineral and agricultural resources are to be investigated. The nature of the climate, temperature, rainfall, and surface waters, together with the whole of the circumstances affecting the meteorological phenomena of the country.

After passing in review the details of the animal and vegetable kingdom generally, the question of the population is then reached. The inhabitants of the country are to be studied through statistics and any available source of information relating to their political, social, and domestic organisation; their language, literature, arts, and sciences.

At this stage the inquiries take a higher range, and become of special interest to the students of anthropology; for whether the inhabitants are regarded as individuals or as members of families they have to be considered in all that relates to them as human beings. Race, type, language, peculiarities of bodily form and constitution as variously developed under the different circumstance of climate, food, and clothing. Laws and customs, natural propensities and acquired habits, religious traditions, progress in arts and general civilisation, literature, poetry, and music. This is, as we have already stated, but a mere outline of some of the subjects on which the student is directed to collect facts.

In the "*Aide Mémoire*" for travellers, Anthropology occupies a prominent position. The traveller is furnished with a list of works to be consulted, and with hints for his guidance as to the line of demarcation between man and other animals, particularly the points in which he differs anatomically from the anthropoid apes; the antiquity of man, the points on which those who carry it back to the tertiary period rely as evidence; the variability of human types, and the light thrown upon that question by the constancy of the Egyptian type during the whole of the historical period. A brief summary is given of the controversies which have taken place upon the Neanderthal skull, the unity or plurality of human races, the origin of man, creation or transformism, and the centres of appearance and dispersion, whether one or many. The reader is also put in possession of materials for studying the question of migration, both before and after historical times, and of the extinction and disappearance of peoples, as proved by archæology and by tradition not less than by recent experience. These, and other useful collections of information on subjects of geography, geology and biology, are modestly entitled "general notions."

The manual affords facilities for the collection of valuable information upon scientific subjects. It is illustrated by about 300 beautifully-executed plates and drawings. The appendix contains some valuable tables and directions. The relative degrees of the meridians of Greenwich, Cadiz, Washington, Rome, and Pulkowa (Russia), with that of Paris are given. The barometrical tables and formulæ have been supplied by Professor Weilenmann, of Zurich. There is also a copious index.

In the "*Aide Mémoire du Voyageur*," M. Kaltbrunner has completed his work by furnishing a sort of portable encyclopædia of the information which will be useful to travellers, but which they would otherwise have to seek, perhaps vainly, in a number of special treatises. This volume, like the first, is liberally illustrated with coloured plates. Altogether the work cannot fail to be of great service to future students, travellers, and explorers.

At the risk of appearing too minute in our notice, we cannot avoid calling attention to an inaccuracy in the value of English money as set forth in Table VIII. of the Appendix. The practical standard of comparative value between English and French money is as follows, viz.: £1 sterling = 25, 00 francs; 1 florin = 2 shillings = 2, 50 francs; and 1 shilling = 1, 25 francs instead of 25, 22; 2, 32; and 1, 16, as stated in the table. The departure from the standard values is due to the course of exchange tempered by the money-changer's conscience. When the exchange at Paris is at 25 centimes in favour of England, a very common rate, the money-changer seldom allows more than 15 centimes. And in London the charge for changing French into English money is rarely less than 50 centimes for each £1; sometimes twice as much is charged.

AN ABSAROKA MYTH. By W. J. HOFFMAN, M.D.

A long time ago, before we had either guns or horses, and lived in a country where the snow never fell, there dwelt among us a beautiful maiden whom the sun saw and fell in love with. The maiden was the pride of the Absaroka, and every warrior tried to excel the others in making her presents of the finest robes. She was surrounded with every comfort, and lived in the best lodge in the village. The sun came here to visit her every night, and in time a child was born, which, as it grew older would amuse itself by sliding down the rays of sunlight that entered the lodge. After a while, *Fool Dog* also saw this woman and fell in love with her, but finding his love was not returned, he ravished her. The next time the sun visited her, she related all that had happened, whereupon the sun became very angry and threatened to destroy the Absaroka.

There came a great famine; the snow fell, and the buffalo did not return to the hunting grounds. The weather continued so cold during the following summer that the corn did not grow and the Absaroka were rapidly dying off from starvation and disease. Then the chief men met in council, where it was decided that it were better for them to seek a new home. It happened that while the Absaroka were moving, that *Fool Dog* was obliged to fall behind on the trail, as he was weak, sick, and starving; then *White Wolf*, the servant of the sun, appeared to him and said that the Absaroka might yet be saved if his directions were followed: *Fool Dog* must hasten on to overtake the party at their next camp, where an offering must be made to the sun; he must gather a large pile of dry wood and grass for kindling; also some corn and the fat of the buffalo, of which he must make ten balls, to be thrown upon the pile, when the fire would instantly appear.

When *White Wolf* had finished talking he disappeared, and *Fool Dog* started on the trail, though he had great difficulty in reaching the party who had already encamped at some distance for the night. He began to search in the various lodges for the corn and buffalo fat, but meeting only with disappointment, he strolled away from camp to meditate. Here he observed a solitary lodge, occupied by an old woman who, upon seeing the distress of *Fool Dog*, inquired the cause. *Fool Dog* told her of his meeting with *White*

Wolf, and the instructions he had received, but said he was unable to complete the offering to the sun, necessary for the preservation of the tribe. The old woman replied that she had a little corn left that had been laid by for planting in the country to which they were going, but was willing to part with some of it for the purpose required; also, that her son had a necklace to which was attached a small buckskin sack containing buffalo fat, which he always carried about with him as "medicine:" this, said the old woman, she would also give with the corn. The old woman then left, but soon returned again with the promised articles, of which *Fool Dog* at once made ten balls, and hastening back to camp, he threw them upon the pile of wood, which was immediately ignited.

Then *White Wolf* came again and told *Fool Dog* that he must take a "buffalo chip" (*bois de vache*), pulverise it and sprinkle it upon the snow, and that upon the following morning he would find ten buffalo there, of which the Absaroka must not permit any to escape. *Fool Dog* followed these instructions, and all the warriors who were strong enough turned out the next morning, surrounded the buffalo which they found, and killed them.

As there was scarcely enough meat to satisfy the starving people, they began to fear that they should yet perish, when *White Wolf* came a third time, and told *Fool Dog* that he must take another "buffalo chip," pulverise it, and sprinkle it upon the snow as he had done the other, when he would find one hundred buffalo at that place upon the following morning, but the Absaroka must be careful to kill every one, and not allow a single animal to escape. *Fool Dog* again did as he was told, and next morning the buffalo were found as promised, when the slaughter began. It happened that one young bull escaped, who immediately ran to the sun and complained. Then the sun cursed the buffalo, and told him he would no longer protect the herds. He next called *White Wolf* and cursed him, saying he was no longer a servant of the sun, but would be obliged to subsist upon such offal as the Absaroka chose to leave him. The sun no longer tried to destroy the Absaroka, but remained neutral, and since that time he has had no children with an Absaroka woman.

NOTE.—The Absaroka are generally, though erroneously, called the Crow Indians; the former is the tribal name and signifies "yellow-beak" or "yellow-beaked hawk."

Fool Dog was one of a band of that name who are considered sacred and devoted to death.

White Wolf is a mythical being. Frequently animals of abnormal form or colouration are looked upon with awe and superstition, and a mythical reason given for such peculiarities; as, for instance, the red shoulder of the red-winged blackbird (*Agelaius phoeniceus*, Linn.) ; the short tail of the hare, etc.

The fire to light the pile of wood, grass, etc., was supplied through some supernatural agency.

The term "medicine" is usually applied to anything partaking of the nature of a charm or fetish, and is prepared with attendant ceremonies by a "medicine chief" or shaman.

The above is a literal translation of the myth given in the Absaroka language by one of the chiefs who accompanied a delegation to Washington, D. C., in April, 1880.



Morgan

THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

JUNE 8TH, 1880.

Major-General A. LANE FOX PITT RIVERS, F.R.S., *Vice-President,*
in the Chair.

The minutes of the previous meeting were read and confirmed.

HUGH BROOKE LOW, Esq., of the Sarawak Civil Service, was elected a Member of the Institute.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From Professor F. V. HAYDEN.—Eleventh Annual Report of the U.S. Geological and Geographical Survey.

From the UNIVERSITY.—Calendar of the University of Tokio, 1879–80.

—Memoirs of the Science Department, Vol. I, Part 1, Vol. II.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1440, 1441.

—Bulletins de la Société d'Anthropologie de Paris, Jan. 1880.

—Transactions of the Society of Biblical Archaeology, Vol. VII, Part 1.

—Proceedings of the Royal Geographical Society, Vol. II, No. 7.

—Proceedings of the Asiatic Society of Bengal, Jan. 1880.

From the MANX SOCIETY.—Manx Miscellanies, Vol. II.

From the INSTITUTION.—Journal of the Royal United Service Institution, No. 105.

From the SECRETARY.—Atlas of the Anthropological Exhibition of Moscow.

From the EDITOR.—Revue Internationale des Sciences, No. 6.

—— “Nature,” Nos. 556, 557, 558.

—— “Athenæum,” Part 630.

—— Revue Scientifique, Nos. 52, 53.

—— The American Antiquarian, Vol. II., No. 3.

—— Correspondenz-Blatt, July, 1880.

The following papers were read:—

“Religious Beliefs and Practices in Melanesia,” by the Rev. R. H. CODRINGTON, M.A. “Camps on the Malvern Hills,” by F. G. HILTON PRICE, Esq., F.G.S. These communications appear at p. 261, *et seq.*, of the present number. The following obituary notice of the late PIERRE PAUL BROCA, Hon. Member of the Institute, who died July 8, 1880 (prepared by E. W. BRABROOK, F.S.A., Director), is published in advance by order of the Council.

PAUL BROCA, HONORARY MEMBER.

[*Founded, by permission, on the Memoir in the “Revue d'Anthropologie.”*]

PIERRE PAUL BROCA, Senator of France, Professor at the Faculty of Medicine, Surgeon of the Hospitals, General Secretary of the Society of Anthropology, Director of the Laboratory of High Studies, and Professor at the School of Anthropology, Member of the Academy of Medicine, of the Societies of Chirurgery and Biology, of the Anatomical Society, Member of the Council of the French Association for the Advancement of Science, etc., was born at Ste.-Foy-la-Grande (Gironde) on the 28th June, 1824. This little town has the distinction in scientific history of having been the birthplace of Gratiolet as well as of Broca;—it may be added that it is also the birthplace of Dr. Pozzi, on whose memoir this notice is founded.

When the Anthropological Society of London was established in 1863, Broca's name was of course included in the first list of its Honorary Fellows, and in the same year his name appears in the list of Honorary Fellows of the Ethnological Society of London. He had thus a double claim to be associated with this institute, apart from that arising from the many acts of fraternal kindness between it and the Society of Anthropology of Paris, of which he was the ready and enthusiastic interpreter,

and apart from the brilliant services to Anthropology rendered by him during the last 30 years, which would have claimed a record here if we had never known the man himself.

Proceeding with the statement of facts as set forth in the memoir by Dr. Pozzi, we learn that Broca kept his classes in the Communal College which, under a liberal direction, was then frequented by the *élite* of the Protestant youth of France. He belonged to an old Protestant family, and a curious event in his life is the publication by him of half-a-dozen articles in 1864, to protest against his exclusion from the electoral lists of the Reformed Church in Paris. Unpopular as his freedom of thought must have made him among the orthodox party who ruled that Church, he successfully vindicated his rights, though it does not appear that he ever made use of them.

At the age of 16 he took the degree of Bachelor in the Faculties of Literature and of Science, and was about to proceed to the Polytechnic School (where young men are trained for the military profession), for which his taste for the higher mathematics qualified him, when the death of a sister altered his plans. He was unwilling to embrace a course which would have separated him for life from his parents, being now their only child, and he resolved to study medicine with the view of sharing his father's practice. His rapid success decided otherwise for him, and forced him, by a true natural selection, to take the rank he deserved at the head of his contemporaries.

He entered the Faculty of Medicine at Paris in November, 1841, was named *externe* of the hospitals at the competition of 1843, *interne* at that of 1844, and *interne laureate*, with one year's extension, at that of 1847. At other competitions he was nominated successively Anatomy-Assistant of the Faculty in 1846, and Prosecutor of the Faculty in August, 1848. These early successes led him naturally to pursue the career of surgery. He became Doctor of Medicine in the month of April, 1849, and while awaiting the aggregate competition, which would not take place till 1854, he gave lectures as a private professor of surgery and operative medicine at the practical school, which rendered his name popular among the students.

Already numerous works gave promise of the eminence reserved for him in the future. In 1847 he contributed to the *Bulletins* of the Anatomical Society several papers, among them the first of the series on club-foot. From 1848 to 1851, a numerous series of researches on the pathology of the articular cartilages, besides about forty other papers. "There is hardly one of the subjects," says Dr. Pozzi, "in which he did not at the first stroke make a discovery, great or small;—there is not one on which he has not left the mark of his originality."

In 1853 took place, a year sooner than had been at first announced, the aggregate competition so impatiently expected. Broca there displayed a degree of knowledge, and especially of erudition, with which his judges were much struck. His competitive thesis, though drawn up in less than a fortnight, according to the requirements of the regulations, is not the less a finished work on one of the most difficult subjects in surgery. He was named first for promotion, amid the applause of all who were present at the contest. This competition took place at the same time as that of the Central Office, which likewise ended in his nomination to the title of Surgeon of the Hospitals.

Broca had already acquired all that hard work and talent could accomplish in competition with others. For the rest, favour alone could anticipate the work of time. He was not the man to solicit the first, or patiently to wait for the second. In default of the competition suppressed by the Empire, and not yet re-established by the Republic, there yet remains one efficacious means by which a man of brilliant intellect may, while still young, force his way into the ranks of the professoriat. Broca chose that means, and conceived the hope of conquering the position by the importance of his labours.

In the six years from 1853 to 1859 he produced successively important works on cancer, on galvano-caustic, and finally upon aneurisms. The book which he devoted to the history and therapeutics of these lesions is one of the finest monuments of contemporary medical literature. At the same time he collected the materials for his celebrated "Treatise on Tumours." But the year 1859 marked in some sort a new era in his life. He had finished his five years' service as surgeon of the Central Office; he had still three years to wait until his turn of seniority should call him to take the direction of a service in the hospitals.

To explain how he became the founder of the Society of Anthropology it will be necessary to go a little further back. Dr. Pozzi has profited by the MS. notes furnished by Broca at the request of M. Bogdanow, for the record of the Anthropological Exhibition of Moscow, and has thus supplied some details hitherto inedited. In 1847, when Broca was only anatomical assistant, he was added, for the study of the bones, to a special Commission charged by the Prefect of the Seine to make a report on the excavations in the cemetery of the ancient church of the Celestins. To draw up his report (published by the city of Paris in 1850, and reprinted in the first volume of the "Memoirs of Anthropology"), he was led to seek and to read these veral works which relate more or less to craniology,

and thenceforth, though his competitions led him to studies quite different, he continued to read with lively interest the books, then very few, which treated of man and the races of man. Ethnology, the name then borne by the science of man, was then concentrating its energies on the question of monogeny and polygeny. The Ethnological Society of Paris, founded in 1838 by William Edwards, had so completely exhausted this subject and itself, that, one day in 1848, it had nothing more to say, and ceased to meet. It was not till ten years after this that Broca made his first communication to the Society of Biology on certain facts in hybridity. Rayer, the President of the Society, alarmed at his heterodox notions, requested Broca to suspend his communications on the subject. Accordingly it was not in the Proceedings of the Society, but in the "*Journal of Physiology*" that the memoirs on *Animal Hybridity* in general, and *Human Hybridity* in particular, appeared.

This episode, which had sensibly agitated the Society of Biology, showed the necessity of founding a new Society, in which questions relating to mankind could freely develop themselves. But the project met with difficulties of more than one kind. The first was the recruiting of members; Broca had judged it necessary to obtain at least twenty adhesions before founding the Society. The members of the old Ethnological Society were first addressed; all refused to join themselves to this little nucleus formed by the six members of the Society of Biology, who, headed by Broca, took the initiative of this rash enterprise. It became necessary to look elsewhere, and it was not till the end of a year that the list of founders amounted to nineteen.

During this time, fruitless efforts had been made to obtain authority to meet. The Minister of Public Instruction, M. Rouland, had refused it. He sent Broca to the Prefect of Police, who sent him back to the Minister, hoping thus to tire out his patience; for these two personages, with the perspicacity which distinguished the statesmen of those times, supposed that the word "*Anthropology*" must cover some political or social machination. At last, thanks to the intervention of Professor Tardieu, a chief-of-division in the Prefecture of Police showed himself less intractable. Considering that no law forbade the association of less than twenty persons, after having scrupulously examined the list of founders, he consented to give Broca authority to meet his eighteen colleagues. He held him personally responsible for all that might be said in the meetings against society, religion, or the government.

To ensure the execution of these prudent arrangements, an agent of police was to be present at the meetings, in plain

clothes, and was directed to make a report upon each of them, and the authorization was to be immediately withdrawn if the Society touched any theological, political, or social question.

It was in these precarious conditions that the Society of Anthropology of Paris held its first meeting on the 19th May, 1859.

In substituting the term Anthropology for the much less general one, Ethnology, it wished to show from the very first the entirely new extension given to its programme. It embraced, in fact, all the natural history of mankind, whether considered in the present, or in the past, or in its general characters, or in its subdivisions into races or varieties, or in its origin, or in its relation with the rest of nature. This programme thus comprehended not only ethnology, or the study of human races; it comprehended also general anthropology, or the study of mankind, and extended itself besides over a large number of auxiliary sciences:—zoology, comparative anatomy, geology, palæontology, prehistoric and proto-historic archæology, linguistics, mythology, history, psychology, medicine itself. And as in the midst of studies so diverse and so divergent it was necessary to constitute a central basis, the founders of the Society, who were all doctors of medicine, judged with their young leader that this basis ought to be established on that which is most fixed in man, that is to say, upon his organisation and functions—in a word, upon anatomy and physiology.

With such a vast field of researches the Society of Anthropology ran no risk of extinguishing itself for want of materials, like its predecessor, the Society of Ethnology. When it was seen at work adhesions quickly came, and when it had published the first volume of its Bulletins, when it had thus shown the exclusively scientific character of its labours, the misgivings which it had excited before its birth began to disappear. The Minister of Public Instruction, M. Rouland, at last deigned to authorise it in 1861, and three years later it was recognised as a society of public utility by a decree proposed by the Minister, M. Duruy, and adopted on the favourable advice of the Council of State.

From that day the agent of police, who had from the origin attended all the meetings, went to exercise his talents elsewhere.

Broca liked to tell an amusing anecdote on the subject of this supervision: the police officer acquitted himself of his mission with so great regularity, and had got so much the habit of sitting among the members, that he seemed soon to have forgotten that he was there in a special capacity. Wishing one day to be able to take a holiday with a free conscience, he

approached the officers with an amiable smile and addressed Broca—"There will be nothing interesting to-day, I suppose? May I go?" "No, no, my friend," Broca immediately replied, "you must not go for a walk: sit down and earn your pay." He returned to his place very unwillingly, and never after ventured to ask a holiday from those he was set to look after.

During the first three years Broca fulfilled the functions of secretary. This task was irksome to a man who was continually taking a personal part in the discussions, and who, notwithstanding occupations of all kinds, was constantly preparing original communications for the Society. Broca, nevertheless, undertook the labour without hesitation, knowing how important it was that the publications of the young Society should be edited with energy and appear with punctuality.

He excelled, moreover, in the difficult work of recording faithfully, but without prolixity, the arguments of the different speakers. Under his pen the discussions took a concise and neat form, which added to their original interest, and put clearly in relief the central point of the debate, so often lost sight of in extemporaneous speeches. These accounts are, in their way, real *chefs-d'œuvre*; he wrote them almost entirely from memory, for he took too active a part in discussion to be able to take notes at the time.

In 1863 the growth of the Society had rendered necessary the appointment of a general secretary, to hold office for three years, and be capable of re-election. Broca was naturally elected to this office and held it till his death. It has been very often said, and Dr. Pozzi repeats it, with our entire assent, that Broca was the soul of the Society of Anthropology.

He was its founder, he kept it alive, during those early years of difficulty, by the preponderating interest of his incessant labours, and by the communicative ardour of his devotion to the young science. He knew how to group around himself the most diverse and apparently the most discordant elements; he knew how to keep them united, how to excite the zeal of some, temper the fire of others, exercise upon all an authority incontestable and uncontested, because it reposed alone upon his real superiority freely recognised by all. This powerful action of Broca, visible especially at the commencement of the Society, was not less real even to the last, notwithstanding the care he took to avoid everything which might give him the appearance of personal direction. But even when he voluntarily effaced himself in an irritating or ill-timed discussion, his attitude, the few words he would allow to escape him, even his vote alone, indicated infallibly to hesitating minds on which side were the reason, moderation, and justice of the case.

From the first year he was occupied with the creation of a craniological collection which, thanks to the navy surgeons with whom he kept up an active correspondence, made rapid progress. Nevertheless a museum remains barren if it is not accompanied by a laboratory. The Society's place of meeting did not allow of this. If a skull can be measured on a mere table, certain other branches of Anthropology require quite special conditions: a cabinet of instruments, a studio for drawing, photography and moulding, and above all a dissecting-room. Then the administrative regulations absolutely prohibited the removal of dead bodies to private establishments. It was therefore only at the practical school of the faculty of medicine, near the dissecting tables, that the laboratory of Anthropology could be established. The foundation of this laboratory was all the more necessary, that there yet existed nothing of the sort in any country; nowhere could students find the means of initiating themselves in the practice of Anthropology.

Such was the object Broca proposed to himself, as soon as he had solidly established the foundations of his Society.

His nomination as Professor at the Faculty of Medicine in 1867 gave him the opportunity and the means.

This nomination, preceded some months by his entry into the Academy of Medicine, in the section of operative medicine, had been earned by labours of the first order in anatomy, physiology, and surgery. In fact, during the eight years that had elapsed since the foundation of the Society of Anthropology, Broca, while devoting the greater part of his time to the Society, had not put aside his researches. Besides numerous communications to the Societies of Biology and of Surgery, he had published two volumes of considerable value, forming the greater part of a Treatise on Tumours, which unfortunately remains unfinished. Finally, he had commenced his labours on the seat of articulate language, and had already been able to establish, by irrefragable proof, the solidity of a discovery which alone would suffice to render his name immortal.*

The office of Professor entitled Broca to have, at the practical school of the faculty, a laboratory for his personal researches. Two small rooms above the Dupuytren Museum, where the new Professor had hardly room enough to collect together the books, instruments, and collections most indispensable for craniological studies—such was the commencement of the Anthropological

* "Bull. Soc. Anatom.," 1861, t. xxxvi, pp. 330-357, 398-407; 1863, 2nd Série, t. viii, pp. 379-385, 393-399, &c. "Bull. Soc. d'Anth.," 1863, t. iv, pp. 200-308; 1864, t. v, pp. 213, 217, 362-365; 1865, t. vi, pp. 372-393; 1866, 2nd Série, t. i, pp. 377-382, &c., "Gazette des Hôpitaux," 23rd Jan. 1864, pp. 35, 36. "Bull. Soc. Chirurg.," 1864, 2nd Série, t. v, p. 51.

Institute of Paris. He chose, as private "préparateur," M. Hamy, who remained for several months his only fellow-labourer. There Broca commenced his researches upon the comparative anatomy of the *primates*. At the same time he set to work to complete, by the invention of new craniometric and anthropometric instruments, the instrumental material of Anthropology. Thus were created in their turn the craniograph (1863), the new goniometer (1864), the sphenoidal crochet, the stereograph (1865). Later, he completed the scientific arsenal by other successive inventions; the maxima frame and the micrometric compass (1869), the occipital goniometer (1872), the flexible auricular square, the auricular goniometer, the facial demi-goniometer, the cranioscope, the intercranial impress-holder, the endograph, the millimetric roulette, the endometer, the pachymeter, the Turkish crochet, the optic and acoustic sounders, the double disk to recompose the compass (1873), the cyclo-meter (1874), the goniometer of inclination, the orthogone, the flexible goniometer (1880). The former candidate at the Polytechnic School came thus usefully to the aid of the Naturalist in the search for trustworthy graphic processes, the invention of easy means for the determination or the calculation of angles, and the construction of these simple and ingenious machines, the management of which might be learned in a few days by those even who are strangers to the notions of high mathematics, which their discovery supposes.

Broca had published, since 1865, in the *Memoirs of the Society*, the famous general instructions for Anthropological Researches and Observations, a sort of codification of all the processes and methods which could aid and regularise the observations of scientific men and travellers. The influence of this memoir, separately published and largely circulated, has been immense, notwithstanding the imperfections and omissions which have been supplied in a later edition. It was, in a succinct form, a considerable work for its novelty and for its elevation. It was afterwards completed by the *Craniological and Craniometric Instructions*, which appeared in 1875 in the *Memoirs of the Society*.

In 1868 the Minister of Public Instruction, M. Duruy, had the happy idea of constituting the Practical School of High Studies, by allowing annual subsidies and giving an official character to the principal private laboratories which already existed in the various establishments of instruction.

Broca's laboratory was included among the laboratories of research of the new School, and M. Hamy received the title of "préparateur." Broca immediately instituted a system of instruction which quickly developed itself, for from the second lesson the

number of pupils was too large for the small space allotted to him, and he was obliged to ask authority from the Dean to remove his lectures to a larger room.

This brilliant course of teaching was interrupted by the war of 1870-71. At that time Broca was Clinical Professor at the Hospital of La Pitié; having succeeded, in 1868, M. Gosselin, on his promotion to La Charité on the death of Velpeau. From the commencement of the siege La Pitié was crowded with the wounded. Broca gave himself up entirely to surgery and to hospital management. He had been named one of the three Directors of Public Assistance, and was besides at the head of the important ambulance established in the Hôtel de Chimay. All his time was occupied in these active duties, and for the first time for many years he forgot the way to his laboratory.

He found it again during the Commune. Too good a Republican and too good a patriot not to condemn the insane attempt which compromised with so light a heart the existence of Paris and of the Republic, too disdainful of danger and too sedulous of duty to abandon the wounded confided to his care, he isolated himself in his work, but did not dream of quitting Paris. During the long days of the second siege he commenced to form that admirable collection of cerebral models which is now one of the principal possessions of the laboratory of Anthropology. At the moment of the entry of the troops to Paris, Broca incurred the greatest personal dangers. The house he lived in is very near the Rue de Lille, where the ravages of the fire were so great. How much intellectual wealth, long and laboriously amassed, was then devoured by the flames! One can understand the emotion of Paul Broca when, after the peril was over, he recovered his books and manuscripts intact.

The immense service which Broca rendered to the Administration of Public Assistance during the Commune is not generally known. The director of that great department had suddenly left for Versailles, without notice to Broca, who was then Vice-President of the Council of Public Assistance, and without taking any measures for the security of the funds. The cashier alone remained at his post in the Avenue Victoria, which the federals occupied as well as the place of the Hôtel de Ville. Broca, without news from Versailles, where they seemed to look unfavourably on the officials who remained in Paris, but informed by other means of the intentions entertained by the federals on the funds of the hospitals, took upon himself to save the money, notwithstanding the danger of such an enterprise. He commenced by himself carrying away in carpet-bags all the securities and funds which were kept at the Avenue Victoria, and hid them at the Charité with the aid of the director of that

hospital. He took the precaution to leave about 3,000 or 4,000 fr. (£150) behind, and to recommend the cashier to continue at his post, so as not to awake suspicion. It was time, for the very next day after the transfer of the property to the Charité, the federals presented themselves in arms at the Avenue Victoria; the cashier, summoned to deliver up his funds, at first put on a show of refusal, then obeyed, and the emissaries of the Commune were astounded and deceived to find a very small sum where they hoped to discover a treasure.

Had the hint been given, they could at any moment have caused inquiries to be made which would have revealed the hidden property; the poor cashier, trembling for his safety, came continually to Broca, imploring him to get rid of these compromising securities. It was resolved that the bags should be carried to Versailles. The means employed to throw the Commune off the scent were most audacious; a potato cart set out ostensibly for the hospice of Ivry, led by a safe man. The precious carpet-bags were hidden under the potatoes, and, the sentries passed, the cart took the road for Versailles, where it arrived the same day. The packages sent by Broca were there returned to the very prudent director: they contained, in notes and securities, 75,000,000 fr., or three millions of pounds sterling.

After the return to Paris, when people were hurrying from all parts to seek a reward for services, great or small, Broca made no allusion to his own courageous action. He seemed to have forgotten it: the Government did the same, and in order that there might be no mistake in the matter, pronounced the dissolution of the Council of Public Assistance, without a word of thanks for him who had presided over it. This ingratitude gave Broca no anxiety. Doing good under the sole impulse of his conscience and his greatness of soul, he found in himself his high recompense, and as to the distinctions which Power can confer, if he did not affect to disdain them, he simply neglected them. His ambition was more noble, his purpose more elevated; he proceeded steadily towards it, losing no time on those distractions of the road—titles, places and decorations. Virtue and science were for him the reverse of what they were to many others, always the end and never the means.

In resuming his teaching after the war, Broca founded the "*Revue d'Anthropologie*," of which the first number was published in January, 1872. The contributors to this journal and the staff of the laboratory formed a little phalanx of instructed and zealous Anthropologists; and this gave Broca the idea of developing the teaching of Anthropology by founding a public school which should not want for competent professors.

The foundation of the School of Anthropology was due not

were isolated, it was forbidden to designate them under the collective title of "school," or under any other title indicating their solidarity. The influence of M. Henri Martin was a frequent help to Broca during the difficult period, and M. Vulpian, Dean of the Faculty, smoothed many obstacles for him. Finally, the senatorial elections of 1878, in consolidating the Republic, strengthened at the same time all the institutions which fought for progress. The authorisations of the Anthropological lectures were made thenceforth collective and permanent; and the Chamber voted to the school an annual subsidy of £800, which added to the £480 already mentioned, and to £80 from one of the founders, raised its annual resources to £1,360. The future of the school was thus assured. Broca, who had founded the Society of Anthropology, could thenceforward be certain that it would not perish, and that the teaching of new professors would perpetuate the taste for his beloved science. He had thus crowned the edifice which he had constructed.

The Society of Anthropology, the laboratory, and the school, reunited in the same locality, form thus a sort of federation under the name of the Anthropological Institute. These three establishments offer, by their combination, all the resources necessary for research and for teaching. By the side of theoretical lectures the laboratory constitutes a true practical school, where the pupils are permitted to make Anthropological measurements under the direction of M. Topinard and the preparers, MM. Chudzinski and Kuhff. Not far off is the Society's valuable library, and one of the greatest Anthropological museums in the world—the only one in which all collections relating to Anthropology are brought together.

In the last years of his life Broca commenced a series of studies on cerebral morphology. He proposed to do for the cerebrum that which he had accomplished for the cranium, and there is no doubt that he would have carried this great enterprise to success. Already, in 1876, by his memoir on cranio-cerebral topography, he had fixed the relations which exist between the scissures of the nervous surface and the sutures on the cranial surface. The following year the study of the brain of a gorilla gave a fresh impulse to his researches by furnishing him with new and valuable facts. Thence succeeded rapidly the memoir on the large limbic lobe and limbic scissure, in the series of the mammifers, the researches on the olfactory centres, and finally the treatise on cerebral nomenclature—an admirable monument, worthy to serve as a pendant to the celebrated memoir of Gratiolet, on the cerebral folds of man and the primates. When he was surprised by death,

Broca was working at a complete work on the morphology of the brain, which would have resumed in a masterly way the result of his studies. Though unfinished, the manuscript will not be lost to science; reverent hands have collected together its scattered leaves, and will publish it after having tried to complete it with the notes taken at the lectures on anatomical Anthropology.

During three years Broca had been compelled to deliver lectures twice a week, while the majority of his colleagues at the School of Anthropology limited themselves to a single lesson. He was, in other ways, the most occupied of any, going regularly to the hospital every morning, and sitting several times a week at the examinations of the faculty. Each day he passed long hours in the laboratory; dissecting, drawing, taking measures, presiding at the modelling or at the classification of the specimens with which the museum, now called by his name, and so worthy to bear it, was constantly being enriched. To Anthropology he devoted also most of his evenings, whether in the complex administrative details of the young Institute, or in correspondence with savants in all parts of the world, having for purpose as much to facilitate the studies of travellers, as to enrich the collections of the Institute.

Dr. Pozzi simply mentions without detail the part taken by Broca in the several congresses at Paris, Bologna, Buda-Pesth. and Moscow; his labours in the organisation of the Anthropological Exposition at the Trocadéro; and the place he occupied in the sessions of the French Association for the Advancement of Science, of which he was one of the principal founders. He presided over the congress at Havre in 1877, and delivered an address so admirable and comprehensive that the Council of this Institute requested Captain Dillon, then one of the directors, to translate it for publication in this *Journal*, where it appears (Vol. vii, p. 187). The following letters were received from Broca on this occasion:—

“My dear Colleague,

7th September, 1877.

“I thank you for the interest you are so good as to take in the progress of the French Association. We have still more than one step to take to arrive at the degree of prosperity of your great British Association, which has served as a model for us. Nevertheless, our progress has been more rapid than we hoped. The session at Havre, on the subject of which you congratulate me, has been well occupied in sectional work, but will not bear the fruit in the country that might be expected, because the political journals, absorbed in the indescribable crisis to which we are subjected, have been able to give it but little attention.

“I send you by the same post the number of the ‘Revue Scientifique,’ which contains my opening Address. I am much flattered by the intention you mention of publishing this discourse in the ‘Journal of the Anthropological Institute.’ It is an excess of politeness on your part to ask me for authority to do so, for the reproduction of that which is said in a public meeting is a right which belongs to everybody, and far from seeking to restrain this right, we are, on the contrary, grateful to those who thus assist us with publicity. This way of looking at it is not that only of the French Association; it is also that of the Society of Anthropology. Last year the Central Committee authorised me to encourage the reproduction of our works, by lending the wood-blocks which accompany them to any one who asks for them. Since then, to render the matter more easy, our *gérant* has collected and classified all the wood-blocks belonging to the Society, those of the ‘Revue d’Anthropologie,’ and a certain number of others published elsewhere. All these are catalogued, and proofs of them collected in an album, easy to consult, which is put at the disposal of any author, who can use them on payment of the mere cost of making the cliché, which is very small.”

“Dear Colleague,

30th December, 1877.

“I received some days ago the packet containing copies of the last number of the ‘Journal of the Anthropological Institute.’ I had the satisfaction to find in the *Miscellanea* the translation of my discourse on fossil human races. Be so good as to present my thanks to the author of that elegant and faithful translation. I received also some days ago your answer on the subject of the exposition of Anthropological sciences. Your Society, though young under its present title, is in reality the oldest of those which now exist, and will furnish to the case containing publications of Anthropological Societies the most considerable series.”

The last remark relates to a contemplated history and bibliography of Anthropological Societies in Europe, which we regret to learn Broca was not able to complete.

The crowning distinction of Broca’s life was his election as a permanent member of the French Senate, as the representative of science. We were authorised by a small club of English Anthropologists to convey to him their sentiments on this occasion, and received the following answer :—

“My dear Colleague,

Paris, 12th February, 1880.

“I am much touched by the congratulations you do me the honour to address to me, in the name of the Anthropological

Club, on the occasion of my nomination as senator. In choosing their candidate for the first time from outside the political world, the 'Left' of the Senate have wished to manifest their good disposition towards the sciences; and if I am happy in having been chosen on that ground, I am especially happy that Anthropology should have acquired so much importance in public opinion, as to be called to have its representative in the Senate. The contest, to which I remained completely a stranger, was very lively. It happened in grave political circumstances, following on a secession which threatened to displace the majority in the Senate, to the advantage of the clerical party. It is not therefore Anthropology alone which has had the honour of raising the storm among the *patres conscripti*; but it at least has been the 'Turk's head' upon which repeated blows have been struck. It has been attacked under all forms, during 15 days, by the journals of the 'Right.' It may, therefore, claim for itself a good part of the success."

The triumph was celebrated by a dinner given to Broca by his colleagues and admirers; probably the largest and certainly the most brilliant gathering of the kind that had ever taken place under similar circumstances. It was too soon followed by his sudden death—not to be referred to at length, but must be mentioned for the sake of his own remarkable words—"If the law of compensation is true, a great misfortune threatens me, for, my friends, I am very happy."

He was present at the meeting of the Society of Anthropology on the 1st July, when it is interesting to record that a proposition was made by himself, M. de Mortillet, and others, for the election of the President of this Institute as a Foreign Associate, and one of its Directors as a Corresponding Member, of the Society. Thus his last official act was one of goodwill towards us. He made remarks at this meeting on some pre-historic skulls from Rio-Negro.

He attended in his place at the Senate on Tuesday, the 6th July, and was seized with a fainting fit. On Wednesday he felt sufficiently recovered to resume his labours. On Thursday evening he was actually at work with his true friend, pupil, and colleague, Dr. Topinard. Towards midnight the same evening he was suddenly attacked with dyspnœa, rose from his bed, and expired in ten minutes. He had just completed his 56th year. Upon post-mortem examination all the organs were apparently sound, and Prof. Ball, one of his pupils, says "We shall probably not be far from the truth in attributing the catastrophe to cerebral exhaustion, arising from too protracted a course of severe intellectual exertion." *Actis ævum implet, non sequibus annis.*

The funeral took place on Sunday, the 11th July. The pallbearers were M. Jules Ferry, Minister of Public Instruction; M. Pelletan, Vice-President of the Senate; M. Vulpian, Dean of the Faculty of Medicine; M. H. Roger, President of the Academy of Medicine; M. Ploix, President of the Society of Anthropology; M. Gariel, General Secretary of the Association for the Advancement of Science; M. Alphonse Guérin, Surgeon of the Hospitals; and M. Ollivier, Interne of the Hospitals. At the cemetery—the same western cemetery where Broca had commenced his first labours in craniometry—funeral orations were pronounced by some of these distinguished persons, and by M. Verneuil, M. Trélat, M. Tillaux, M. Dumont-Pallier, and M. Henri Martin, Member of the Institute.

We translate that of M. Eugene Pelletan, pronounced in the name of the Senate :—

“I come in the name of the Senate to say a last adieu to him who, but yesterday, was among them, and is now in this coffin; a deadly thunderbolt has removed him, in a few hours, from science and from his country, for in him there was not only the savant but also the citizen. He belonged by his birth to that strong race, so roughly tried, of the Reform, which the persecution of a whole century had attempered to the severe life of labour and of duty. He had learned from the cradle that between liberty and science there is so close an intimacy that where the one disappears the other decays and finishes by disappearing in its turn. He came early to Paris, that rendez-vous of all geniuses seeking to develop themselves; son of an eminent physician, he wished to follow the paternal career, and from the first steps which he took in the medical schools he showed, upon the very benches of the school, that he was more than a pupil, that he was a future—he ascended brilliantly all the degrees of the internat, the doctorate, the aggregation, the professoriate: others of greater authority will soon tell you by what numerous, by what learned works he reached the foremost ranks of French surgery. He had hardly passed the age of youth when he had already attained celebrity. But surgery did not suffice that encyclopædic mind—at once inquirer and observer—it was to him only the preface of a science more vast, the science of man himself in all times, and on all the continents: he founded, in concert with an *élite* of savants, the Society of Anthropology, a mother society which possesses at this day as many daughters as there are capitals in Europe. A new science, human palæontology, has just originated under our feet; at hundreds of ages of depth, our forefathers have been in some way surprised, lying pell-mell in the midst of the giant fauna of a vanished creation. Broca was one of the valiant pioneers who penetrated

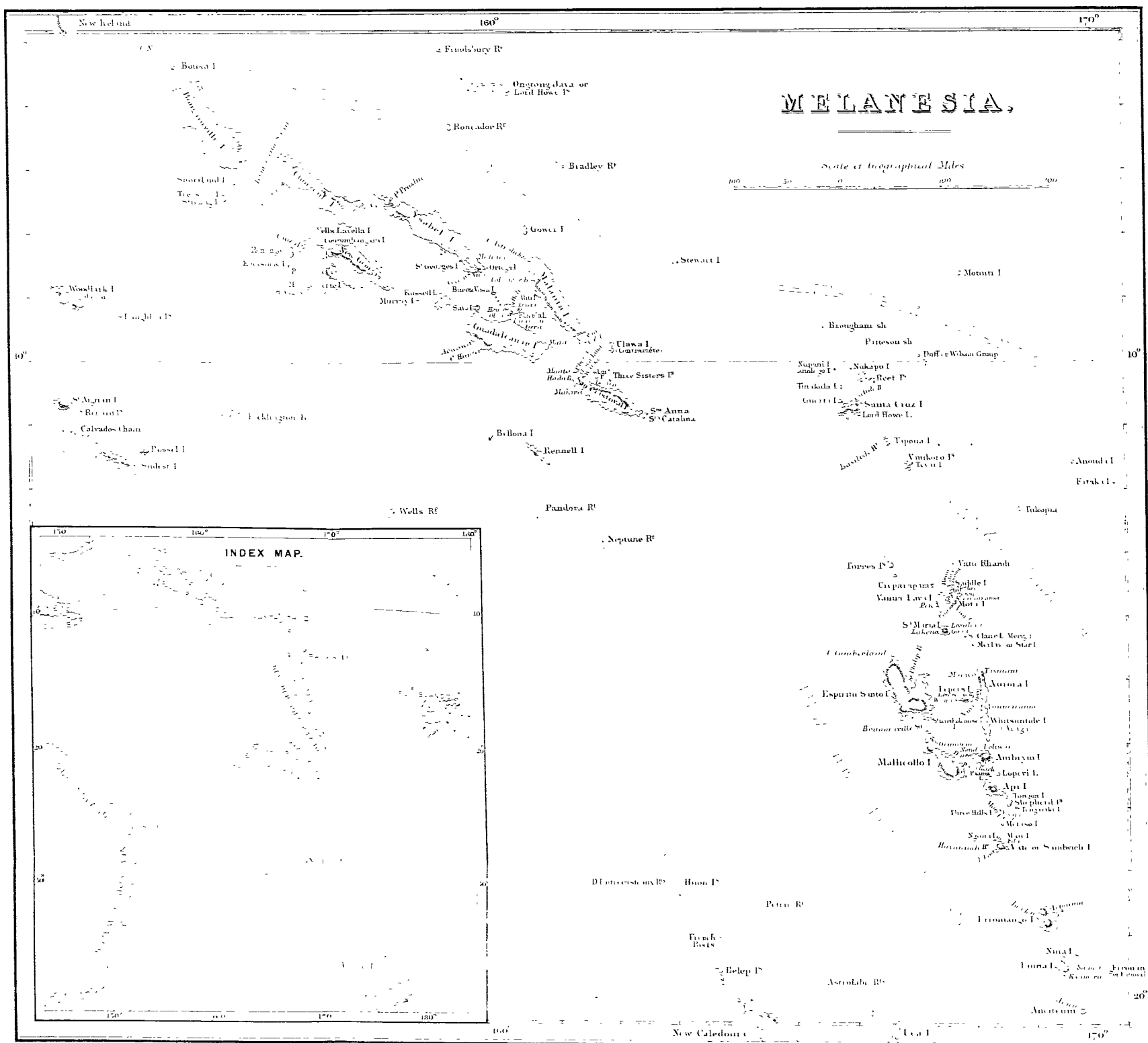
the foremost into this subterranean world of humanity, and who understood best how to throw light on such history as is left of it. But high as he had raised his renown in science, he recognised the claim on him, not only of his genius, but of his home. That fireside, formerly so attractive to all who had the happiness to frequent it, its brilliancy is now in part extinguished! he knew at least all its joys and all its grandeur, first in the noble comrades who were always an inspiration and a second conscience to him; and then in his children, who, we think we may affirm, will know how worthily to bear the name which their father has bequeathed to them. But by the side of that first family Broca thought that there is another, which has the right also to our love and to our devotion—it is France, our country; not only the material fatherland of the soil, but also the moral fatherland of liberty, for they are inseparable from one another; both, in every circumstance, Broca generously devoted himself, first under the Empire, and afterwards during the siege of Paris. He shared in all our struggles to recover the confiscated rights of democracy, and all our efforts to repel the enemy who surrounded the capital of France with a circle of iron and of fire. His patriotism as well as his liberalism had designated him beforehand for the choice of the Senate, as soon as the majority should have passed over to the side of the Republic. We had to do violence to his modesty, to induce him to take his seat by the side of his illustrious colleague, Doctor Robin. But he understood that at a time when public instruction in France was to be regenerated, his place in the Senate was marked out for him, and he accepted it. When it became necessary to name a reporter upon the law for the secondary instruction of young girls, which is in itself alone quite a moral revolution, it was he who was chosen, and he drew up that remarkable report, which was, alas! to be his political testament. He had not the opportunity to defend it in the tribune, and to show that in him, besides the writer, there was also the orator.

“And now what remains of this life so full of work, lamentably cut short before the time? This yawning grave before us, which a little earth will soon fill up. I know not what monument grateful science will one day raise to the friend we mourn, and our tears are still the words most worthy of his memory, but from to-day we, his friends, his witnesses, have built a living tomb to him in our hearts, not less imperishable than marble and bronze; he will rise again continually in us as we live again in him; and whenever we have need to call our minds up to the height of duty, of devotion to justice and to truth, it is of him that we shall take example, and it is to the memory of him that we shall turn to seek for counsel.”

It is not necessary to reproduce the other tributes which were rendered, in language almost as eloquent, by the distinguished representative men who followed Broca to the grave. Nor need we give at any length the comments on his character, which those who knew him intimately have published. A specimen or two of these will suffice. Of that which interests us most here—his creative power, if one may so speak, as a teacher of Anthropology—Professor Ball, Chevalier of the Legion of Honour, one of his pupils, says with force and truth: “Anthropology is a compound of so many other sciences that the intervention of a grasping and encyclopædic mind, like Broca’s, is almost invaluable to form the connecting link between so many different branches of human knowledge. An excellent mathematician, a first-rate anatomist, a good Greek scholar, Broca combined in himself that diversified knowledge which the subject requires, with the synthetical tendencies which condense these disseminated forces, and make them converge upon a single point.” Dr. Pozzi says: “Broca was benevolent and good. All those who knew him have in memory his affability and his trustworthiness. He took an affectionate interest in the studies of his disciples. He knew how, with touching delicacy, to dissimulate his aid, when he redressed an error or inspired a new idea, and had the very rare care to put in the light the part in his own works, however little it might have been, which belonged to the fellow-labourer. On the other hand, Broca was known, among all the students, not to be a protector of his own pupils; in competitions and examinations, as in all the circumstances of life, he had no rule but that of equity. But if he was incapable of asking favour for them, he took up their defence with ardour, when an unfair advantage was sought to be taken of them. Their cause then became his own; every attack upon justice seemed to wound him personally.”

The devoted group of accomplished men who have been his disciples will well continue the great institutions he originated. Dr. Gavarret succeeds him as Director of the School of Anthropology; Dr. Mathias Duval as Director of the Laboratory of Anthropology; Dr. Topinard as Director of the “*Revue d’Anthropologie*,” and also as General Secretary of the Society of Anthropology. Its museum will henceforth bear the appropriate title of *Musée Broca*.

We select apter words than any of our own, to sum up a grand and admirable character:—



“ For he was worthy—full of power ;
As gentle—liberal-minded, great,
Consistent ; wearing all his weight
Of learning lightly like a flower.”

The excellent portrait, which the courtesy of the publisher of the “*Revue d'Anthropologie*” enables us to reproduce, is from a photograph in the possession of Dr. Topinard, bearing the inscription “à mon collègue et ami, Topinard, souvenir affectueux, Broca.”

RELIGIOUS BELIEFS *and* PRACTICES *in* MELANESIA. By the
Rev. ROBERT HENRY CODRINGTON, M.A., Fellow of Wadham
College, Oxford ; Melanesian Mission, Norfolk Island.

To represent with tolerable correctness the religious belief of a savage people must always be very difficult. Their ideas are not clear, and there is no systematic form in which they are accustomed to represent them among themselves. Although the superstitious practices which go along with the superstitious beliefs are followed with little variation in form, perhaps over a considerable area, and when there is much variety of dialect, yet inquiries into such matters will meet with what at first seem very different answers in one place and another.

To undertake to describe the beliefs and practices which make up what may be considered the religion of the Melanesians, is pretty certain to go beyond what is attainable by any one. The islands and the dialects are so numerous that no one person's knowledge can well range over the whole. To represent what is believed and practised in some parts of Melanesia is all that can be attempted here ; but it is extremely probable that if the true account can be given of the conception of the supernatural world prevailing in one group, it would hold good in the main of the whole people.

What is called Melanesia is made up of four groups of islands, which are plainly distinct. The first comprises New Caledonia and the Loyalty Islands, from whence little information is at present to be had ; the second is made up of the New Hebrides and Banks' Islands, which are closely connected ; the third is the Santa Cruz group, which has, by a series of calamities, been cut off from almost all observation ; the fourth is the Solomon Islands. In all but the first there is a portion of the population not Melanesian, but belonging to the Polynesian Islands to the East. What is here offered is drawn chiefly from

the Banks' Islands and Solomon Group, whence the most advanced scholars have come to the Melanesian Mission Station on Norfolk Island.

The young people among the islands know very little indeed of what the elders believe, and have very little sight of their superstitious observances. The elders are naturally disinclined to communicate freely concerning subjects round which, among Christian converts, there hangs a certain shame; while those who are still heathen will speak with reserve of what retains a sacred character. Such reserve, on the part of converts or the unconverted, is so far natural and proper, that a considerate missionary probably will not press inquiries too early or too far. If one should, he will probably fill his mind with mistaken notions, and perhaps publish them before he finds that they are wrong.

Hardly any European, whether missionary or traveller, can approach savage life and customs without such preconceived opinions as will colour the view of what he sees. Hence the head of some implement carved for the simple purpose of adornment figures as a Solomon Island idol; a stone, kept in a house for cracking nuts, appears a fetish; or the singing and dancing at a feast seems a religious celebration. To some, every legend will bear traces of primitive truth; to others, the evidence of the growth of myths. If the visitor for the first time mounts into a Banks' Island village, and sees, a little apart from the group of houses, a platform squarely built up of stones, a small high-pointed edifice upon it, with the embers of a fire below, and above an image grotesquely shaped in human form, it is not strange if he takes it for granted that he sees an idol and a shrine and altar. When he hears of Qat and his eleven brothers, one seizes on a solar myth; and another cannot but think of Noah and the Flood, when he hears of the deluge which floated off the canoe into which Qat had shut up his family and all living creatures.

Approaching the subject of his inquiries with some prepossessions of this kind, one who is trying to obtain information from the natives, even supposing him to be able to communicate with them in their own language, will meet with native accounts of their own beliefs and practices much less trustworthy than he supposes.

The native, with his very vague beliefs or notions floating in his mind, finds in the questions of the European a thread on which they will precipitate themselves, and without intention to deceive, avails himself of the opportunity to clear his own mind, while he satisfies his questioner. When there is no certain medium of communication; when a native interpreter,

who speaks a little broken English, is employed to ask questions and to return the answers, nothing can be depended on as certain which is received. To be able to use some European word, or word supposed to be English, to describe a native practice or to convey a native belief, is to have an easy means of giving information; and so, among the islands, "plenty devil" is the description given of a sacred spot, and "tevoru" (devil), in Fiji, has become the common appellation of the native ghosts or spirits.

Supposing again that the inquirer is able to communicate pretty freely on ordinary subjects in the language of any island, he will surely find himself baffled when any one of the elder people undertakes to give him information. The vocabulary of ordinary life is almost useless when the region of mysteries and superstitions is approached.

Some such statement of the difficulties in the way of a certain knowledge of the subject is a necessary introduction to the account which has to be given of the religion of the Melanesians. The account must be partial, the knowledge of the subject is incomplete, and absolute certainty is not to be attained. After all, were it not that the beliefs and ways of savage people are of so much interest, it would seem that what can be learnt of Melanesia is of very little value.

The Melanesian people, however, form but a branch of a very widely spread and very ancient race; it may be thought with much reason that they represent a more primitive condition of the race than that in which it is found either to the west or the east of them; among, that is to say, the islands of the Malay Archipelago and those of the Eastern Pacific. There can be no doubt that the languages of Madagascar, of Malacca, and of the Banks' Islands, are dialects of the same original tongue; and hardly less doubt that the people are branches of the same stock.

To the student of language or ethnology who approaches the islands of the Pacific from the side of India, it is very natural that the characteristics of the languages or the people common to those islands and the Malay Archipelago should best be described as Malay. To one again who approaches the same islands from New Zealand, the people and the speech of some places will appear to be Maori, and throughout the islands Maori characteristics will be conspicuous. It is, nevertheless, far from being probable that those who are known in comparatively modern times as Malays are the original stock from whence the islands of the Pacific have drawn their blood or speech; and no one can suppose that the Maoris of New Zealand have been the source whence those among the in-

habitants of Melanesia have sprung whose speech is in fact almost Maori, and their physical and social characteristics the same. But whatever may be the respective position of Malay and Papuan in the great and ancient family to which they both belong, it is clear that the Melanesians—the inhabitants, that is, of the four groups above enumerated—are Papuans; and that they have near them, to the west, the modern Malays, and near them, to the east, the modern Polynesians. In New Guinea the Papuan, in what is thought his home, is in contact with the Malay; in Fiji, where the mass of the population is identical with that of the Melanesian Islands, the Papuan has long been in contact with the Polynesian. In Melanesia itself, no intercourse with the modern Malay from the westwards is known, but abundant traces appear of Polynesian visitors from the east. In those parts, therefore, where the effects of Polynesian immigration are least conspicuous, it will be reasonable to look for the characteristic Melanesian people, and their characteristic religious beliefs and practices.

It would not be, in all probability, very difficult to define the districts in which the direct modern influence of visitors from the Eastern Islands is to be seen. The more remote the time of immigration, the wider the range of its influence, the more difficult it becomes to distinguish possible traces of Polynesian ways and beliefs among the superstitions of Melanesia. Besides, however, what may be considered originally common to all the branches of the race, and besides what is to be found in Melanesian Islands in unmixed or almost unmixed colonies of Polynesian immigrants, there is doubtless an element commonly present in the New Hebrides which is traceable to modern Polynesian influence from the east.

If any special knowledge were to be had of the distinct and plainly Polynesian settlements in the Melanesian Islands, it would be hardly appropriate to introduce it here, since it is a foreign element which is present and distinct beyond mistake.

For example, the inhabitants of Tikopia, a small island not very distant from the Banks' Group, are unmistakably Polynesian in language and appearance, without any admixture of Papuan blood. Their customs are no doubt those of the island whence they originally came. The same is the case with the people of Rennell Island and Bellona Island, which lie south of the Solomon Group. To one coming from New Zealand with a knowledge of the Maori language and people, their speech and habits are at once familiar. The language, at any rate, of the Reef Islands, near Santa Cruz, in one of which Bishop Patteson met his death, is purely Polynesian, and the Bishop could always easily converse with them. Physically, they do not

appear to be pure Polynesians, being probably much mixed with the neighbouring people of Santa Cruz. The same is the case apparently with the people of Ontong Java, or Lord Howe's Group, which lies to the north of the Solomon Group.

In some parts of the New Hebrides, however, such as in part of the island of Mae (three hills), the people appear in no way different physically from their neighbours; but their tongue is purely Polynesian, is in fact that of Tongatabu, from whence no doubt they have come. They retain also further unmistakable marks of Polynesian origin or influence. Some evidence of a similar connection with the eastern islands could probably be traced generally among the New Hebrides; but to trace it would require such a knowledge of the Polynesian people and of the New Hebrides people as it may be safely asserted that no one now possesses. Nothing is known to show that the Banks' Islands have been influenced by Polynesian immigration or neighbourhood; though there are still men alive who can remember a visit, which might have ended in a settlement, of double canoes from Tonga. The Banks' Islanders alone among Melanesians knew no cannibalism, and wore no dress.

In the Solomon Islands another strain in the blood of the population is apparent; much more apparent in the more westerly islands of the group. The pure Polynesians of Rennell Island, the Polynesians, in speech and customs at least, of the Reef Islands, present no difficulties, for their race and origin is apparent. It is very different when in Florida or Ysabel wavy hair, or in children almost straight hair, somewhat oblique eyes, a scanty beard, with light and delicate extremities, make up a type distinctly different from the frizzly-haired and thickly-bearded Papuan, and still more unlike the Polynesian with his straight hair and massive limbs. It is evident that there is an admixture of some element from the West; how ancient it may be it is impossible to decide, and it is not easy to give it a name. But it is not that modern Malay colonisation of the Papuan Islands which is spreading towards these Solomon Islands, but has by no means approached them, and which corresponds to the settlements of the Polynesians from the East, in Fiji and the New Hebrides. It is an element of more advancement in the arts of life, and of more general vigour and activity. No visitor can fail to feel himself nearer the Asiatic islands when he finds the public hall of each village adorned with heads, when he comes within the region in which head-hunting is the practice, and when he sees in Savu or in Florida houses which are the counterpart of that at Waigion figured in Mr. Wallace's book on the Malay Archipelago.

The religious and superstitious beliefs and practices of a

people are sure to bear traces of the origin and subsequent admixture of the population. In Melanesia, therefore, as there is a very perceptible admixture of Polynesians from the eastwards, it will be reasonable to look for the origin of some beliefs and practices in the eastern islands; and as in advancing westward there is a different and apparently Asiatic element among the people, it will be natural to expect some change in religious ways and notions corresponding to it. It would be highly unreasonable, when anything corresponding to a Polynesian practice on the one hand, or to the practices of the Asiatic islands on the other, occurs in Melanesia, to put it down as an importation from one side or the other; for there is a common origin to the whole plainly stamped upon every language throughout. But where there is in Melanesia least apparent admixture of population from east or west, it is reasonable to suppose that whatever can be ascertained of the native notions of the supernatural and of the original superstitious rites, will represent most completely the religious beliefs and practices of the Melanesian people throughout. The Banks' Islands appear to be thus the best representatives of the whole.

CHAPTER II.

THE BANKS' ISLANDS. BELIEF IN SUPERNATURAL BEINGS.

THE seven islands of the Banks' group, though there is a considerable diversity of dialect, have a population among whom no other differences seem to prevail. It is evident, therefore, that the religious beliefs and rites which were common to them, all belong to the same period of the history of the people as does the use in unknown antiquity of the common tongue, from which the various dialects have long ago diverged. The largest island of the group by far is Vanua Lava, in which are trees found also in the Solomon Islands, but not in the rest of this group, and where the variety of animal and vegetable life is said to be greater than in the neighbouring islands. It is to Vanua Lava also that the stories common to all the group refer. The information which has been gained concerning the native superstitions has been chiefly derived from Mota, a much smaller island lying five miles from Vanua Lava; and the native words which must be used in treating the subject will be those in use at Mota. In all probability, what may be learned from any one island of the group would hold good of

the whole, though Vanua Lava may have been the centre and the source of all.

Supernatural Beings. Beliefs, and the customs and practices which result from them, are concerned with the invisible world, or with those things at least which belong to another sphere of being from that of living men. The Banks' Islanders distinctly recognised two orders of intelligent beings different from living men; they believed in the continued existence of men after death in a condition in which they exercised power over the living; and they believed in the existence of beings who were not, and never had been, human. All alike might be called spirits, but it will be convenient to use the English words *Ghost* and *Spirit*, corresponding to the Mota *Tamate* and *Vui*, and meaning in the one case the disembodied spirits of dead men; in the other, beings corporeal or incorporeal, but never human. Very often the story told of a *Vui* will represent him as if a man; but the native will always maintain that he was something different, and deny to him the fleshy body of a man. It is too much to say of any of these *Vuis* that they were held as gods; those indeed to whom the term would be most readily applied are the most like to men, but all were thought to be more than men in power over the forces of nature, and were called upon by prayer to help in time of need.

In order to distinguish the two great classes of *Vuis*, it will be well to speak of them as *corporeal* and *incorporeal*, with the understanding that the *Vui* who is represented as corporeal has a body indeed, but not a human body.

Corporeal Vuis figure largely in the stories and legendary belief of the people. The most conspicuous is I Qat, concerning whom and his familiar assistant Marawa and his eleven brothers more will be told hereafter. There was a time when all were living at Vanua Lava, but they had disappeared time out of mind from their quasi-human habitation. Yet they are still at hand to help, and are invoked in prayers; though it is not by their agency that the forces of nature are ordinarily supposed to be moved or controlled, but by that of the incorporeal *Vuis*. The dangers to which Banks' Islanders are most exposed are those of the sea, in their voyages in poor canoes from one island to another. The following prayers give a notion of the way in which *Vuis* of this kind are called on to help:—

“Qate! you and Marawa, cover over the blow-hole for me, let me come into a quiet landing-place, let it calm nicely down for me! Let the canoe of you and me come into a quiet landing-place!”

“Qate! Marawa! look down upon me, smooth the sea for us two, that I may go safely on the sea. Beat down for me the

crests of the tide rip: let the tide rip settle down away from me, beat it down level that it may sink and roll away, and I may come to a quiet landing-place."

"Qate! Marawa! let the canoe of us two turn into a whale, a hawk, a flying-fish; let it leap onwards over the tide rip, let it speed, let it pass out into my land."

In answer to such prayers as these, it was supposed that Qat and Marawa would come and hold fast the mast and rigging of the canoe, and save it in all danger.

It will be seen that I Qat is represented as creating men and animals, and it was natural that the first European visitors to the Banks' Islands should have believed him to be the supreme God of the native mythology. But it is evident that Qat is by no means looked upon as the author of the natural objects, by which the natives found themselves surrounded. He was born into a country already inhabited, not by men, but by *Vuis*; he finds himself among houses, canoes, bows, and arrows, and in the midst of such arts of life as the natives had attained when first seen by white men. If it were not for the supernatural powers that he and those with whom he lived possessed, there would be little indeed to show him other than a man. With the confusion which is common in such mythologies he is even considered by some to be the ancestors of those who claim his birth-place in Vanua Lava, Alo Sepere, as the home of their forefathers. In all this, the legends of the Banks' Islanders concerning Qat will be found to correspond to those which prevail among the Maoris, and other Polynesian people, concerning Maui or Tangaroa. The brothers of Qat have all of them the name of Tangaroa, the *Vuis* of the northern New Hebrides have the same name, which is also applied in the Banks' Islands to stones used as fetishes or amulets. With the exception of his introduction of Night, the feats of Qat are trivial and apparently unmeaning; the most remarkable of all is his disappearance from the Banks' Island world. The story which is told at Santa Maria is as follows:—

Where now in the centre of the island is the great lake there was formerly a great plain covered with forest. Qat cut himself a large canoe there out of one of the largest trees. While making it, he was often ridiculed by his brothers for his folly, and asked how he would ever get so large a canoe to the sea. He answered always that they would see by-and-bye. When the canoe was finished, he took inside it his wife and others, making up altogether eight persons, collected living creatures from around, even those so small as ants, and shut himself and all inside. Then came a deluge of rain; the great hollow of the island became full of water,

which burst through where now descends the great waterfall of Gaua. The canoe *tore* a channel for itself out into the sea, and disappeared. There was an expectation of a future return; and a few years ago, when a small trading vessel ran on the reef, and was lost, she was apparently standing in to the channel of the waterfall stream; and the old people cried out that Qat was come again, and his vessel knew her own way home.

The resemblance of this story to that of Noah cannot be missed. It is far from improbable that the number of eight persons, and the closing in of the canoe, may have been added since the Bible history has been made known among the natives. A canoe closed in above is not likely to be thought of; and the rapidity with which a new foreign story is taken up and assimilated has been shown by the narration of the Riddle of the Sphinx, by a Mota lad in Norfolk Island, as a Mota legend. The resemblance without is striking, and that the story is in the main originally native is certain. When for the first time Bishop Patteson went ashore at Mota, they cried out that the brothers of Qat were returned. So Captain Cook in the Sandwich Islands was received as the returning Rono.

Though Qat was gone away, and, as was sometimes said, had taken the best things with him, with which he would some day return, yet inasmuch as he was a *Vui*, he could be invisibly at hand. As for Marawa, the Spider, he has not yet disappeared from Vanua Lava. A few years ago, a man in the early morning going to the river side saw a *Vui* there, smaller in stature than a man, and with long straight hair. He followed him up along the stream till he disappeared in a narrow gorge behind a stone. The stone opened like a door, and within it was a cave, which was the *Vui's* home. To the man's questions he replied that he was Marawa, and lived there, and that he would wait and be seen again if the man went back to the village for some money. The man is still alive, and still finds it to his profit to tell his story, and receive on Marawa's behalf the money of those who wish him to do them a good turn.

These *Vuis* are certainly not malignant beings, only to be propitiated by offerings lest they should do harm to men. Qat's brothers envied him and persecuted him, and there are many stories of wicked *Vuis*, the giants and the ogres of Banks' Island nursery tales; but Qat himself is a good-natured fellow, playfully mischievous, and enjoying the exercise of his wonderful powers; and if his sense of justice makes him punish his enemy, Qasavara, with death, when he triumphs over his brothers, he gives them only the lesson of their experience, that quarrelling and envying bring nothing but

discomfort, and charges them in their new country to lead a better life.

Occupying as Qat does the most conspicuous place in the mythology of the Banks' Islands, he gives his name to remarkable objects; a fungus is his basket, a fungia his dish, sulphur his sauce, a beam of light shining through the roof in the dusty air his spear, and the flying shadow of a solitary cloud over the sea is the shadow of Qat.

Of the same order of beings with Qat and his brothers, though looked upon as very inferior, are certain *Vuis* having rather the nature of fairies. The accounts of them are vague, but it is argued that they had never left the islands before the introduction of Christianity, and indeed have been seen since. Not long ago there was a woman living at Mota who was the child of one; and a very few years ago a female *Vui* with a child was seen in Saddle Island. Some of these are called Nopitu, which come invisibly, or possess those with whom they associate themselves. The possessed are themselves called Nopitu. Such persons would lift a cocoanut to drink, and native shell-money would run out instead of the juice, and rattle against their teeth; they would vomit up money, or scratch and shake themselves on a mat, while money would pour from their fingers. This was often seen, and believed to be the doing of a Nopitu. In another manner of manifestation, a Nopitu would make himself known as a party were sitting round an evening fire. A man would hear a voice in his thigh, "Here am I, give me food." He would roast a little red yam, and fold it in the corner of his mat. He would soon find it gone, and the Nopitu would begin a song. Its voice was so small and clear and sweet that once heard it never could be forgotten; but it sang the ordinary Mota songs.

Such spirits as these if seen or found would disappear beside a stone; they were smaller than the native people, darker, and with long straight hair. But they were mostly unseen, or seen only by those to whom they took a fancy. They were the friendly Trolls or Robin Goodfellows of the islands; a man would find a fine red yam put for him on the seat beside the door, or the money which he paid away returned within his purse. A woman working in her garden heard a voice from the fruit of a gourd, asking for some food, and when she pulled up an arum, or dug out a yam, another still remained; but when she listened to another spirit's Panpipe, the first in his jealousy conveyed away garden and all.

Under the cover of these fanciful popular beliefs, it may be readily understood how much mischief and wickedness could be carried on.

CHAPTER III.

THE STORY OF QAT.

I QAT was born at Alo Sepere in Vanua Lava; his mother Iro Qatgoro was a stone at the time of his birth, according to some, or turned into one afterwards, which is still to be seen. Qat was the first-born, after him Tangaro-Gilagilala, that is Tangaro the Wise; the other brothers, down to the twelfth Tangaro-Loloqong the Fool, were all called Tangaro with the addition of the name of the leaf of some tree. They were grown up as soon as they were born, and they took up their abode with their mother in the village; where Qat occupied himself in creating trees, rocks, pigs, men, and the objects of nature generally.

At first it was only day, and they cooked and ate till they were tired of it, and his brothers pressed Qat to do something for them to make a change. Some say that he heard there was night at Vava, the Torres Islands some 40 miles off, and sailed over there; others relate that he paddled till he reached the foot of the sky to buy night from I Qong, Night. He took with him a choice pig and told Qong what he wanted. Qong blackened his eyebrows and showed him sleep that night, and next morning how to make the dawn. Qat paddled back with a fowl and birds to show the morning, and with a promise that Night would come. Arrived at his home Qat warned his brothers to provide food and mats, for Night was coming. Presently they saw the sun moving and sinking towards the west, and cried out to Qat that it was crawling away. "Yes," said he, "it will soon be gone." "What is this coming up out of the sea and covering the sky?" cried they. "It is Night," said he; "sit down on both sides of the house, and when you feel something in your eyes lie down and keep quiet." Presently it was dark and their eyes began to blink. "Qat! Qat! what is this? shall we die?" "Shut your eyes," says he, "this is it; go to sleep."

When night had lasted long enough Qat took a piece of red obsidian and cut the darkness, and the dawn came out. The fowls and the birds began to crow and sing, and the brothers of Qat awoke.

One day the brothers of Qat climbed a tree for fruit, which was the property of a bad *Vui*, an eater of men. Tangaro the Fool let a nut drop on the house of the *Vui*, who came out and killed all the brothers and put them into a food chest. Qat waited five days for his brothers, then took his bow and arrows and his shell hatchet and went in search of them. He brought out the *Vui* by again dropping a fruit on his house,

fought with him and killed him; then searching for his brothers found their bones in the chest. He revived them by blowing through a reed into their mouths.

The origin of the connection of Qat and Marawa was as follows:—

The brothers proposed to make canoes, and worked at theirs every day. Qat intending to surprise them delayed for some time, and then having chosen a large tree and begun to chop it down, he hastened home before evening lest it should be known that he was at work. For several days he found every morning that what he had chopped away had been replaced at night, and the tree made solid again. At last, to find out the cause, he hid himself under a large chip, and saw a *Vui*, a Spider, a Marawa, replacing the wood he had cut away. In his search for the large chip the Marawa found Qat, and eventually agreed to make the canoe for him, which he did in a very short time. When the brothers had finished and launched their canoes, Qat lifted his hand and one after another they sank. Then he and Marawa appeared in his own, and having amused himself with their mortification, he recovered their canoes for them in the night.

Qat's wife was Iro Lei, whom he had made for himself, and very beautiful, and his brothers envied him the possession of her. To revenge themselves for his tricks with them, and to obtain Iro Lei, they tried to kill him. Once they beguiled him into a hole under a rock which they had undermined, in search of a land crab. When they had let fall the rock upon him, and were running off each in hopes of securing Iro Lei for himself, Qat called Marawa to his rescue, and was found in his own house by his brothers with his head in his wife's lap.

On another occasion they cut half through the branch of a fruit-tree and persuaded Qat to go out for the nuts. When he fell as the branch broke, and as they thought was killed, Marawa again saved him, and they found him reposing with his wife. Again they got him to mount a nutmeg tree, which they made to grow so tall and big that he could not come down, and then ran off to claim Iro Lei; but Marawa the Spider spun him a line, or as some say, gave him a hair of his head, by which he descended to the ground, not, however, before his brothers had gone off with his wife and his canoe.

Qat runs to the village, calls his mother to give him his cocoa-nut-shell bottle, his cock's feather, his necklace, his shell axe, and some bananas. These he stows into the bottle and himself besides, and makes his mother throw him into the sea. The canoe of his brothers had passed beyond the furthest of the Banks' group when Qat in his cocoa-nut came up; he drew them

towards him, paddle away as hard as they would. Though they took up the cocoa-nut, none but Tangaro the Wise knew what it was, and Qat went on before them and came to land. Then he decked himself in his ornaments and awaited his brothers, perched on a pandanus. When they came ashore he chopped the canoe to pieces, with a song which is still preserved, and advised his brothers, now in a strange country, to live in peace and union, especially since they had a dangerous neighbour. This was Qasavara, a *Vui*, and very strong and fierce. He pretended friendship and brought Qat and his brothers to his place, giving them lodging for the night in his "gamal," the long eating-house found in all the Banks' Island villages. In the night Qasavara came to kill them, but Qat had tapped the ridge pole with his knuckles and opened it for his brothers to sleep in. Before day they came out, and Qasavara was told by Tangaro the Fool where they had been hidden. Next night Qasavara broke open the ridge pole, but they were in a side post. A third night he broke open the side post and they were in a centre post. Then he determined to kill them by day at a feast.

Qat made his preparations by planting an "aru," a Casuarina, and telling his brothers how to escape and climb up it. In washing their hands before preparing the food they contrived to spill all the salt water, so that when the time came for pouring salt water into the oven there was none, and they volunteered to go for more. Thus they went two and two till all but Qat had escaped. Qasavara then attempted to kill Qat, who continually avoided his strokes, leaping from side to side of the oven, while he caught up the food and ran off to his aru. As he climbed up to his brothers, Qasavara climbed after him, but as he came near, Qat cried out "Stretch, my aru!" and the tree grew up between them. This was done over and over again till the aru touched the sky, when Qat cried, "Bend down, my aru!" The top of the aru reached down to Tetgan in Vanua Lava, and all the brothers got down and ran off. Qat remained holding fast the top of the tree; and Qasavara seeing that he was beaten, cried for mercy. But Qat cried, "Spring back, my aru!" and the tree sprang back and dashed Qasavara against the sky. He fell dead, either in Vanua Lava or in Gaua, and turned into a stone, on which sacrifices are made by those who desire to be strong in fighting.

The story of the disappearance of Qat and his brothers varies, as it is natural that it should, in the several islands of the group. The version accepted at St. Maria has been already given, but in all it is argued that they went off in a canoe carrying the best of everything with them, and that the

condition of mankind was altered for the worse on their departure.

The making of men and animals by Qat occupies no conspicuous place in his legend, it was done, by the way, as other things were being done. Man was made at first with the same shape as that of pigs, but on the remonstrance of his brothers against the monotony of his creatures' appearance, Qat beat down the pigs to go on all fours. Man was made of clay, red from the marshy riverside of Vanua Lava. A touch of a finer feeling than is common lights up the story of the making of the first woman. Qat took rods and supple twigs and wove them together to make Iro Vilgale, the first female among mankind; he set them up on end and fashioned with his basket work the head and various members; then when he saw a smile he knew it was a woman.

The story of the bringing of death into the world is remarkable, because it is told without any variation in the Solomon Islands and Banks' Islands alike. At first men never died, but when advanced in life they shed their skins like snakes or crabs, and came out in renewed youth. An old woman went to a stream to change her skin, and let the old one which she had shed float away till it caught against a stick. She then went home where she had left her child. The child refused to recognise her, and declaring that she was another person could only be pacified by the woman returning for her cast integument and putting it on again. From that time mankind have died.

In another Banks' Island story this woman is Iro Puet, the wife of I Mate, Death. The inconvenience of the *permanence* of property in the same hands having been felt, Qat sent for Mate, who lived by the side of a volcanic vent at Gaua, Sta. Maria, where now is one of the descents to Panoi, the lower world. Assured that he would not be destroyed, Mate came forth, and went through the show of death and a funeral feast. Tangaro the Fool was set to watch the way to Hell, lest Mate should follow it; but when on the fifth day the conch was blown, and Mate fled from the place of his death, Tangaro the Fool mistook the paths which divided to the world above and to the world below; and all men since have followed Mate into Panoi and never return to life. Another account makes Tangaro the Fool, under his other name of Tagelingelinge, the cause of death, because when Iro Puet set him to guard the way to Panoi in prospect of her own death, he pointed out that way to her descending ghost instead of the way back to the world, and so she died for ever.

CHAPTER IV.

THE INCORPOREAL SPIRITS.—STONES; SNAKES.

THE *Vuis* which are incorporeal and have nothing like a human life, have a much higher place than Qat and his brothers in the common religious system of the Banks' Islanders. They have no names, and no stories are told of them, and they have no shape, but they are numerous, and they are present and powerful to assist men who can communicate with them. That savages should conceive of purely spiritual beings is perhaps incredible; and so it is found that though no one has seen one of these *Vuis*, yet there is the belief that if seen it would be a grey indistinct something that would meet the eye. The line too between these *Vuis* and such as are conceived as visible, and such as Qat or Qasavara, is not distinctly drawn; but still those *Vuis* to whom sacrifice is commonly offered, who are approached through some outward medium of communication, are on the one hand clearly separate from the disembodied spirits of the dead, and on the other from such beings as have or have had a shape and life like men.

These *Vuis* are very generally associated with *Stones*. It is not that the stone is a *Vui*, or that the *Vui* is in the stone, but that there is such a connection between the *Vui* and the stone that the stone is the spirit's outward part or organ. To a certain extent the same connection exists between *Vuis* and snakes, owls, and sharks.

Communication with these *Vuis* is not in the power of all, but there is no order of priests. If a man has his stone or his snake, by means of which he supposes that he can obtain favours from his *Vui*, he will instruct his son or some one else to take his place. If a man finds a stone, either in its natural site which strikes his fancy, or one worn in a stream into the resemblance of a fruit or animal, he conceives at once that there is a *Vui* about it, and believes that he derives advantage from it. Certain well-known stones are looked upon as sacred, either because the fancy of former generations has fallen on them, or because of some accident or adventure that has happened on the spot. But there are spots which only a few men know and visit, which others pass by with awe, where there is some stone which has established its reputation, and where the presence of the *Vui* has made sacred the banyan that grows there (Note 1), and the snake that lives among its stems, and the owls that haunt its branches. To sacrifice upon these stones will bring a man strength in fight, abundant crops, a multitude

of pigs, all the good things of native life. The man who knows the stone and knows the *Vui*, being in a way the priest of it, will receive money from one who wishes to sacrifice, and offer it, or rather some of it, to obtain the benefit desired by him. The other will not approach or see it. No other sacrifice than that of the shell-money in common use seems to be offered in the Banks' Islands.

The influence of these *Vuis* is at least generally beneficent. It is far from the case generally that they are propitiated lest they should do men harm; though it is true that neglect of due observance would be punished by the jealous spirit. The malignant spirits are the ghosts of men. Still there are stones near which an accident has happened, or which for some other reason have a sinister reputation, and their *Vuis* are thought to have rather a turn for mischief. But the Banks' Islander did not conceive of his world as full of hostile spirits; it was in men while they were alive that he was acquainted with cruelty and hate, and it was from the ghosts of men after they were dead that he looked for spite and mischief.

The character and influence of the *Vui* connected with the stone was judged by the shape of the stone. A stone in the shape of a pig, of a bread-fruit, of a yam, was a most valuable find. No garden was planted without the stones which were to ensure a crop. A large stone lying with a number of small ones underneath it, like a sow among her sucklings, was good for men to sacrifice upon for a numerous litter, and good for a childless woman. A stone, with little disks upon it, a block of ancient coral, was good to bring in money; any fanciful interpretation of a mark was enough to give a character to the stone and its associated *Vui*.

The name of *Tangaroa* also was given to stones which a man would carry with him in a bag, or keep hung up in a house, to bring him luck or to avert misfortune. If a man went into another's house in his absence and meddled with his property, and after awhile an accident were to befall him, it would be said that the *Tangaroa* had done it. Such stones are used as amulets to secure safety in fighting; others, if swung about in an invaded place, will take the courage out of the invaders; others will straighten the aim and strengthen the arm to shoot.

Some stones have such power that if a man puts one under his pillow and dreams of a man, that man will die. But the more probable opinion is that this is the work not of a *Vui* but of a ghost, and corresponds to the stones which have the name of "eating ghost:" stones of remarkably long shape which are supposed to be associated with some dead person, and which are

set in a house to guard it. Any one entering a house in the absence of its owner will call out his name, lest the ghost should think he has bad intentions and do him mischief.

Next to stones in sacred character from association with *Vuis* come snakes, either the land snakes which commonly haunt the complicated root-stems of a banyan, or the amphibious ones which are common on the beach. It is not every snake that is sacred, but such as have a connection with a *Vui*, which are his property, or as they say "near" him. Those who have the knowledge of such a snake say that they go in secret to its haunt and call it out. It comes and crawls over their bodies and puts its tongue into their mouths. Then the sacrifice is made by scattering of money, not to the snake, but to the *Vui* whom the snake represents. At the same time, the previous proprietors of the snake, now dead, are invoked, for it is supposed they still have an interest in the matter.

Since no one approaches while this is going on, no one can say whether there really is a snake in the case or not. It is certain that after the death of one who has been in the practice of receiving money to offer to the snake, when others have gone to re-open so profitable a connection, the creature has not been found; and the conclusion is that the man and the snake die together.

Owls, lizards, eels, crabs, and sharks have their share of the same regard; not all of them, but such as are fancied to be connected with a *Vui*. In the same way it is not only stones on which money is offered with prayer either to *Qat* or the incorporeal *Vui* that is attached to it; but a stream or rather a deep hole in a stream (Note 2), or a pool among the rocks on the beach, has money scattered in it and is a sacred place. Into such a deep pool among the coral rocks a man will scatter money, calling on the spirits of his immediate ancestors, and then dive to the bottom. If he sees anything unusual, a crab or cuttlefish, or any such thing, he fancies the creature has a particular connection with him; that it is, as they say, the real origin of his being. If he sees nothing strange, to sit for an instant at the bottom will give him *mana*, supernatural power.

A very singular superstition prevails, not only in the Banks' Islands but in the Northern New Hebrides also, concerning snakes, which have the power of assuming human shape, whether of male or female, for the purpose of tempting men and women, and to yield to whose seductions brings death. Some supernatural character of course attaches to such snakes; they are snakes and not *Vuis*, but a *Vui* has some connection with them. A young man will see a woman with her hair decked with flowers beckoning to him or calling him; coming nearer, he

will see the features of a girl of his own village or the next; he will suspect that she is a snake, and will observe that her elbows and knees are reversed, the elbows in front, the knees behind. This reveals her real character and he flies. If one has courage to strike her with a stick, she sinks and glides away at once as a snake. Not long ago a man at Gaua met on the beach at night a snake in the form of a woman of the place. Seeing by her knees and elbows what she was, he offered to fetch her some money from the village. When he returned with it she was waiting for him in her proper form as a snake; he scattered money on her back, and she went off with it into the sea. Nothing seems to be more fixed in the minds of the natives than the persuasion that all this is true.

Sharks do not meet with so much superstitious regard in the Banks' Islands as in the Solomon Islands; but a shark is sometimes a Tangaroa, a visible manifestation of a *Vui*. Such a one a few years ago was to be seen in the harbour of Vanua Lava, Port Patteson, extremely tame, following its owner through the surf as he walked along the beach. It was a shark, not itself a *Vui*, but it was a Tangaroa. The owner had given money to a Malwo man of Aurora, in the New Hebrides, who had sent the shark to him.

It is by the operation of these *Vuis* also that men are able to make rain or sunshine, and to produce abundant crops of yams and bread-fruit. Stones are the principal media for the exercise of such power, but it is the *Vui*, which the man approaches by the stone, whose power is at work. There can be no doubt but that the rain-makers and weather-doctors believed in their own powers, though much of their success may have been owing to a shrewd observation and experience. To make sunshine, if a very round stone was found, it was wound round with red braid, and stuck with owl's feathers to represent rays; it was then hung on some high tree, a banyan in a sacred place, or a casuarina, a tree which has always something of a sacred character. The stone representing the sun might also be laid upon the ground with a circle of white rods radiating from it for its rays. A piece of *Astræa* coral stone worn round will sometimes bear a surprising resemblance to bread-fruit, and such a stone laid at the foot of a tree will bring an abundant crop. But the possessor of such a stone, because of his connection with the *Vui*, can impart the *mana*, the power which is in the one, to a number of similar stones at once, and so produce a general crop for his village.

It would be very difficult to ascertain whether the *mana*, the personal influence upon which so very much of a man's power depends, in whatever way it is exercised, is thought to originate in a connection with these spiritual beings. The

notion conveyed by the word, which is apparently common to all the dialects of the Pacific, is vague, and the origin of the power not likely to be clearly conceived in the native mind. There can be little doubt, however, but that, as the media of communication with spirits are so various and abundant, and as such communication does certainly in many cases impart *mana*, a supernatural character is attached to any superiority or influence whatever which a man may exercise over his fellows. It is not natural vigour of mind that gives a man the lead in his village; it is not superior industry and a keen eye for business that makes a man's goods increase and his harvests abundant; it is not natural strength or skill that sends his arrows straight; but the man has *mana*; and whether it comes from *Vuis* or from the ghosts of his dead relations will hardly be a matter to be discussed.

There are few points, perhaps, in which the difference between the Melanesians and the Polynesians is more marked than in the position which the *tapu* occupies among them. A few minutes' intercourse with people of the pure Polynesian colonies in Melanesia, as of Tikopia or Rennell Island, is enough to bring the *tapu* to the surface. But among the Banks' Islanders, as generally among Melanesians, though the signs of it appear at every turn, the *tapu* is only employed to reserve the owner's rights to his fruit, or to prohibit the common use of a path, or of a part of the sea-shore for a certain time. Any man, or any set of men who have a sufficient status in the place, can put on his mark and make the *tapu*. At any rate there is no supernatural agency supposed to be at work, except inasmuch as the *mana* of the man who makes the *tapu* is supernatural. The man who should disregard the sign and break the *tapu* would not be sick or die in consequence, but he would have to make it up with the one who set the mark and his associates; he would have to give a pig or money to appease their anger. It is commonly the case that the *tapu* is not set as resting on the authority of a single person, but on that of the grade of the club, or secret society, to which the individual or party belongs; indeed, another word, and not *tapu*, is used when it is a private individual in connection with no recognised and powerful body who puts up his own mark. In such a case, self-assertion is likely to meet with respect, and that is all. The main thing is that no sacred character attaches to the Banks' Island *tapu*, no spirits or ghosts give it a superhuman force.

CHAPTER V.

THE GHOSTS OF THE DEAD; PLACE OF DEPARTED SPIRITS;
CHARMS AND WITCHCRAFT; PRAYER AND SACRIFICE;
SECRET SOCIETIES.

THE spirits called *Vui* are clearly distinct from the ghosts of dead men called *Tamate*, a word in itself signifying dead man. The belief of the Banks' Islanders concerning ghosts belongs to their whole conception of the soul, and of the continued existence and condition of the soul after death. That they should believe in a continued existence is almost a matter of course; but it is not to be expected that their conceptions of the unseen world should be clear and distinct, or that the stories and beliefs concerning it should all agree.

That a ghost is the disembodied spirit of a man, is accepted; but what is the spirit or soul when it is in the body? To that question it is not easy to get a satisfactory answer. Let a man once be dead, and the distinct existence of the *Tamate* that lies in the house or in the grave, and of the *Tamate* that haunts the place or is gone to Panoi, is plainly recognised; though both are called by the same name. But though one word *atai* is generally allowed to stand for that which in English is called the soul, it will not do to accept the word as precisely corresponding. The notions of the native mind were not clear enough before Christian teaching came to be represented by one word which should convey the same meaning to all who heard it. *Atai* is the best word, indeed the only word, that can be used; yet a Christian native well knowing the sense which the word bears to him now will still be found to doubt whether a heathen man would understand it precisely in the same way.

There are three words which it will be worth while to consider and understand, for each of them is used in different islands as meaning soul, and all are found in Mota. The nearest equivalent for soul is found among them, but three islands make choice each of a different one of the three words. They are "*Atai*," "*Tamaniu*," "*Nunuai*."

"*Atai*" in Maori means a shadow or reflection. In Mota it has no such meaning in regard to natural objects. But *atai* is used in Mota for something taken as peculiarly and intimately connected with a person, whether he has set his fancy on it himself, or another has shown it to him. Whatever it may be, the man believes it to be a kind of reflection of his own personality; the man and his *atai* live, flourish, suffer, and die

together. *Atai*, then, is not a word borrowed from this counterpart without the man, and applied secondarily to his soul; but it is a word which carries a sense with it, applicable alike to that object and the unseen self (Note 3).

"*Tamaniu*" in Mota is another name for the same thing, which is also called an *atai*, that is something animate or inanimate which a man has come to believe to have an existence intimately connected with his own. But this is not used at Mota as a word corresponding to "soul"; at Aurora in the New Hebrides it is commonly accepted as such.

"*Nunuai*" in Mota is the recurrence of an impression made on the senses long after the impression has been made. A man who has heard a scream in the course of the day which has startled him, hears it again ringing in his ears; it is the *nunuai* of the scream. A man fishing for flying-fish paddles alone in his canoe with the long light line fastened round his neck; as he lies down tired at night, he feels the pulling of the line as if there were a bite, though the line is not on his neck, and this is the *nunuai* of the line. To the native it is nothing fancied, it is real, but it has no form or substance. In another island of the New Hebrides, Whitsuntide, this is what they call the soul.

It is this soul, the *atai*, which in death is separated from the body. Before death, it is not thought that the soul is commonly separable from the body, though in some dreams of extraordinary character, some will say that it goes out and returns. There are stones also upon which if a man's shadow falls, the ghost which belongs to it has the power of drawing out his soul. So as the very widespread notion prevails at Mota that a sneeze is a sign that some one is calling the name of the man that sneezes, there is thought to be particular danger in the case of an infant lest some ghost should be calling away its soul. If a child sneezes they will cry "Live, roll back to us," as if the child's soul were already called away.

The soul being separated from the body by death, is not supposed to go far away at first. Indeed, the name of the deceased is loudly called with the notion that the soul may hear and come back. A woman knowing that a neighbour was at the point of death heard a rustling of something in her house, as if it were a moth fluttering, just as the sound of cries and wailings showed her that the soul was flown. She caught the fluttering thing between her hands, and ran with it, crying out that she had caught the *atai*. But though she opened her hands above the mouth of the corpse there was no recovery.

On the fifth day there is a mourning and a feast, the body having been already buried. The ghost is then supposed to

leave for Panoi, and shouts are raised, and conches are blown to drive it away from the village. In the case of a well-to-do man, pigs are killed, with the notion that in some way they will accompany him to Panoi. In this sense they will say that a pig has an *atai*, but it is not thought that animals or other things have an *atai* as men have; and it is equally said that it is the *nunuai*, as above, of his pigs and ornaments that go with a man to the other world. At the death-feast, a leaf of cooked mallow, or a bit of food, is thrown aside, and the name of the dead man is called; but this is not done so much with the notion that the ghost will eat the soul, as it were, of the food, as that it is a friendly memorial of him, and that he will be gratified by it. At the same time, no doubt, there are many who think that there is a *nunuai* of the food which reaches the ghost.

"Panoi," the Hades of the Banks' Islands, is a general receptacle for the ghosts from all the group. It is somewhere underground, and there are various entrances to it which are called *sura*. In Vanua Lava and Santa Maria there are still active volcanic vents where there are *suras*; in Mota there is one at the top of the mountain. Generally, however, any point of land is a place for ghosts to assemble for their descent to Panoi. Before descending, or if they are able to come up again, the ghosts entertain themselves at the *sura* with songs and dances; they are often heard shouting and whistling with crabs' claws at night, especially when there is a moon. At times a departed soul has come back from the *sura* to his body; and the man has revived to tell how he was hustled out of the *sura* by the ghosts, who said there was no room for him, and he must go back. Of Panoi itself the notions are but vague; if there are trees the leaves are red; the ghosts do nothing, neither work nor fight; they eat excrement if they eat at all; their existence is empty and wearisome.

There is no difference in condition following on good or bad conduct in the world; but there is a notion that conditions of wealth and poverty are reversed; and some think that all who die under similar circumstances remain together. There is, however, a belief, which women particularly cherish, that the *sure-lumagav*, the place where the ghosts of lads who die in the flower of their youth are congregated, is more pleasant than the rest, that all kinds of flowers abound there, and scented plants. Some think the same of the *sura* of simple harmless people, the *sure-tupa*.

The best authority for the state of things in Panoi was a woman who had been down there. She was very anxious to see her brother who was just dead, she perfumed herself with

water in which a dead rat had been steeped, to give herself a deathlike smell: she pulled up a bird's-nest from a Puet, and descended by the hole that she had opened. She found no difficulty in reaching Panoi, and she found friends who were surprised to see her, but never detected her as one still alive. She found her brother lying in a house, because as a recent ghost he was not yet strong enough to go about. He cautioned her to eat nothing, and she returned. She professed herself, but a few years ago, able to go down as she liked, and whatever was generally believed to be there, she declared that she had seen.

With regard to the immortality of the soul there is a difference of belief; some say the ghosts live for ever in Panoi, others that after a long time they perish. There is a belief, further, that there is a second Panoi, in which those who die out of the first, begin a further term of existence in the form of children. When they are old again they turn into the black, wrinkled, and shapeless masses adhering to the trunks of trees which are the nests of white ants.

The ghosts, however, in Panoi are not those who play so large a part in the unseen world of the Banks' Islanders. Whether it is that ghosts can get out of Panoi, or that there are some that have never settled there, every island is haunted at night by ghosts, and it is by the malicious activity of ghosts that most of the evils of life are brought upon mankind. To say that "savages are never ill," is, like so many statements of the sort concerning savages, wholly untrue in the Banks' islands, in the sense that whenever they are ill they think the disease has been induced by witchcraft or by supernatural agency of some kind. No one imagines his fever and ague to be anything but natural; but there are some diseases which are put down as the work of ghosts, and on some occasions common complaints are thought to have been caused by witchcraft and all witchcraft is wrought by ghosts, by *Tamates*, not by *Vui*s. Just as some men are believed to have a special connection with some *Vui*, some are also believed to have a connection with a ghost or *Tamate*. A stone is the common medium whereby the power of the *Vui* is brought to bear for the benefit of its possessor; and it is by the medium of the bone of a dead man that a ghost is induced or enabled to affect for harm a living man.

There are three principal kinds of charms by which evil was believed to be inflicted through the power of ghosts. The *Garata* was the charming by means of some fragment of food, bit of hair or nail, or anything closely connected with the person to be injured. For this reason great care was used to hide or safely dispose of all such things. The *Talamutai* was a charm

composed of bone and a bit of stone with certain leaves tied up together, with incantations and prayers to a *Tamate*. This was set in a path, and the first who stepped over it was smitten with some disease. The *Tamatetiga* (ghost-shooter) was a bit of hollow bamboo in which a bone, leaves, with whatever else would have *mana* for such a purpose, was inclosed. Fasting on the part of the person using all these charms added much to their efficacy. The man who had prepared his *Tamatetiga* would fast till he found his opportunity, and then covering the open end of the bamboo with his thumb he would take his aim; when he lifted his thumb the magic power shot out, and whoever it hit would die. A few years ago at a great feast at Motlav, a man was carried out, too weak with fasting to be able to walk, and armed with a *Tamatetiga* to let off against an enemy unknown. As he aimed and shot, a man thinking himself the object fell on the spot ready to die with fright: he recovered, however, on finding from the lamentations of the shooter that he was not intended to be hurt. In Mota a man was just letting off his *Tamatetiga* when his sister, carrying her child, stepped across his aim, and he felt that the child was hit. By way of preventing harm, the bone and leaves that were in the bamboo were kept in water that the child's body might be cool and moist (Note 4). The control of the supernatural force was a difficulty; it was by the *garata* that a hold was had upon the person whom it was intended to harm; the fragment of his food brought him within the power of the charm. Other charms were supposed to work upon the first person who came within their influence, and it is yet common in old-fashioned places for the giver of food to a visitor, to bite it first himself, to show that it is not charmed, or to take the risk upon himself.

It was not only by means of charms that the evil work of ghosts was done, they were always seeking an opportunity to do mischief to the living. No one would go about at night for fear of *Tamates*, unless he carried a light, which ghosts themselves were afraid of. If a child were sick, it was thought that it had wandered within reach of some *Tamate* which was drawing out its soul; to cure it the names of all the dead whose ghosts were likely to be at hand were called, while counter-charms were muttered by women who knew them, and were called in on such occasions; when the name of the ghost who had possessed the child was called, he would be forced to fly.

When a man went out of his mind it was supposed that a ghost was possessing him, and wonderful things were thought to be done by one in such condition. To recover such a person, if he could be caught a fire was made of strong-smelling herbs, and the patient held in the smoke. The names of the dead

were called, and when the right name was given the possessed man would confess it, and the power of the ghost would fail. There have been cases in which a morbid desire for communion with a ghost has made persons eat a morsel of a dead man's flesh; one who had done so had then power himself to cause possession of another, by the ghost with whom he had formed this connection. Among the Banks' Islanders alone of Melaneseans, cannibalism was unknown, and such an act as this was thought horrible, yet it imparted *mana*. The same name *Talamaur* was given to one who did this, and to one whose soul was supposed to go out from him, and eat the soul or the lingering life of a freshly-dead corpse. The story of one of these *Talamours* is worth notice; it was a woman who confessed her exercise of this power, and on the death of a neighbour gave notice that she should go in the night and eat the corpse. The friends kept watch, and heard at dead of night a scratching at the door, a rustling and a noise close to the corpse; some one threw a stone and seemed to hit the unseen thing. In the morning the *Talamaur* was found with a bruise on her arm, which she said was caused by a stone thrown at her while she was eating the corpse.

Ghosts do not appear in visible form, but if anything is seen of them it is as fire or flames. Phosphorescent fungus often gives a fright. There are stories also of ghosts which credit them with some bodily powers, and if the vague fears of them can be expressed, it is that they eat people. It has been mentioned that some stones are thought to have *Tamates* and *Vuis* about them, and that if a man's shadow falls on the stone, the *Tamate* will eat him. Here again it is not thought that the shadow is the soul, but that the shadow is very intimately connected with the man, and the stone with the ghost, and by the medium of the shadow on the stone, the ghost can reach the immaterial part of the living man. The spirit of a stillborn child is especially dreaded.

It is impossible to distinguish accurately, and yet some distinction must be made between the ghost whose intercourse with mankind is thus mischievous and dreaded, and the souls of departed friends who are called upon for help. Prayers, as a rule, are made to dead men and not to spirits—to *Tamates*, not to *Vuis*. With the exception of the calls to Qat and Marawa, mentioned above, it is not known that any prayers are offered except to the dead. To call this the Worship of Ancestors is hardly correct. People who carry no memory of their predecessors beyond their grandfathers can hardly be said to worship ancestors; indeed, it may be doubted whether any dead person is appealed to by one who has not known him alive.

It is not by any means the case, of course, that ghosts of the dead are appealed to as benevolent spirits, only to help their friends in what is good; the help that is required of them is very often to do mischief, to which, indeed, they are rather thought to have an inclination. The following prayers will show what they are called upon and thought to do.

Prayer on opening an oven when a leaf of cooked mallow (Note 5) is thrown as if for a dead person: "This is a lucky bit for your eating. Those who have charmed you, killed you [as the case may be]; take hold of their hands; drag them to Panoi; let them die."

Prayer on a voyage: "Uncle! Father! plenty of pigs for you, plenty of money, kava for your drinking, twenty bags of food for your eating in the canoe. I pray you look upon me; let me go safe on the sea."

Prayer on pouring out a little of the liquor before drinking kava: "Grandfather! this is a lucky drop of kava for your drinking; let pigs abound to me; let the money I have spent come back to me; let the food that is gone come back to the house of you and me."

Prayer over a hole in which sacrifice is made by two persons, with a view to advancement in the *Suge*: "Grandfather! Uncle! Father! Great-uncle! let us two go on; there will be a hundred fathoms of money for you; look upon us two; don't look unfavourably on us; let money abound to us, pigs, food; let our *Suge* succeed; let not our canoe be swamped; you sit and look after us; let us go on all right, with no unfavourable looks upon us; let us go on straight in this hole of yours and ours, in the hot suqe-hole of us three!"

It has been said that sacrifices are offered to the dead, but not of anything except money in the Banks' Islands, and that prayers are also addressed, almost exclusively, to them. It would appear, therefore, that the religious rites, such as they are, of the Banks' Islanders are rendered to the dead; but sacrifice and prayer must not be estimated by any other than the native standard, or thought to make a show as the public religious practices of the people. There are no sacred buildings and no priests; there is no public worship; those who have communication with *Vuis* apply to them for their own benefit, and for those who pay them for their intercession. All men when they are of age or position sufficient, and have been taught how to do it, make their prayers and sacrifices upon occasion. A large proportion of the population know very little of what their elders practise.

For the public festivals with songs and dances there is nothing practised, except in small things by individuals, of a

religious character. There is no superstitious association whatever recognised in the dances of any kind, and there are no sacred songs (Note 6). There are no images either which can be called idols, hardly any to which a superstitious regard can be thought to be paid.

The great institutions of the Banks' Islands are the *Suge* and the *Tamate*, which in the absence of all political organisation whatever, supply a certain bond of unity and order throughout the group. Neither have a religious character, nor is any superstitious practice necessarily connected with them; but inasmuch as any man who gets on in the world is supposed to do so by *mana*, and as *mana* is got by superstitious practices, so much of superstition is mixed up with both. So large a share of native life and interest is given to these things that some account of them ought to be shortly added.

The *Suge* is a club, the house belonging to which is the most conspicuous building in every village, and is to be found wherever there is a permanent habitation. This house, or *gamal*, has many compartments, each with its own oven, in accordance with the several grades in the society. Almost all the male population belong to this club, and were formerly bound to take their meals in the *gamal*, the women and little children alone eating in the houses. To rise from one grade to another money has to be given and pigs killed; to take the highest degrees is very expensive, and requires a certain amount of influence, social, and according to native notions, like all other powers, to some extent supernatural. On this account men seeking the high degrees fast, and perform such rites as that of the *Qarang suge* (*suge-hole*) above mentioned. As admission to the highest grades depends on the good will of the few who have already reached them, and all promotion in every rank is consequently under their control, the authority of the men highest in the *Suge* is very considerable indeed. It is these persons who appear to traders and naval officers as chiefs. Their position, however, is merely social, but as has been said before, the fact of their having been able to reach such a position, argues in the native mind the possession of *mana*, which always has some supernatural quality.

It is remarkable that this institution of the *Suge*, quite unknown in the Solomon Islands, is found in the New Hebrides as far south, at least, as Mae, Three Hills. The Banks' Islanders, however, think the southern *Suge* very incorrect.

The *Tamate* is a secret society, or rather there are many secret societies all called *Tamate*, of which one, the *Tamate liucca*, or great one, is the chief, and probably the original. The name is "The Ghosts," and the pretence was that there was in

it an association of living men and ghosts. In the Banks' Islands the *Tamate* is as universal as the *Suge*, and its sacred place, the *Salagoro*, found beside every village. The society, however, does not include all the male population: many remain *matawonowono*, with their eyes closed. Some of the lesser *Tamates* are cheaper than the *Tamate liwoa*, some are more exclusive. Entrance to these societies is obtained by payment, and the neophyte has to spend many days in the *Salagoro*. There is really nothing, however, of initiation, for there is nothing to be initiated into; the only secret was the making of the masks and hats in which the members appeared in public, and the way of producing the sound which was supposed to be the cry of the ghosts. The masks or hats were very ingeniously made, and often beautifully ornamented, the various *Tamates* having various masks. In times not very distant the mysterious character of the *Tamate* was still maintained; the women and children believed that real ghosts were present. All supernatural character has probably now disappeared at Mota, and the societies are maintained for the pleasure of the thing, from old associations, and the conveniences of a club at the *Salagoro*. It is not only in the Banks' Islands that a secret and a costume have their attractions.

The members of the great *Tamate* indulge in much licence. When they choose to go abroad to collect provision for one of their feasts, the women and uninitiated are obliged to keep away from their paths. The warning voice of the *Tamate* is heard, and the country is shut up. There is also a considerable power in these societies to keep order. Each has its distinguishing leaf of a croton. When a member of any *Tamate* sets a *tapu* he will mark it with its leaf, and any one who violates the *tapu* will have to do with all of that society. A man who belongs to all, or all the important, *Tamates* will consequently have much power, and the same man will probably, almost certainly, be high also in the *Suge*. He will have great personal influence and *mana*, and he will have the two great institutions of the country at his back. In islands where there is no political or tribal organisation, position in the *Suge* and the *Tamate* makes the "Great man," whose authority is respected and maintains order. Some years ago men in the highest position in Mota forbade the carrying of bows, in accordance with Bishop Patteson's teaching, and when a man in anger caught up his weapon, the cry of the *Tamate* was heard all round the district, and the fault had to be atoned for with a pig.

The *Tamate* in some shape obtains in the New Hebrides as far south at least as Ambrym; and there is something of it in one island at least of the Solomon group.

CHAPTER VI.

THE NEW HEBRIDES.

THE New Hebrides, consisting of a chain of islands stretching generally in a line for nearly 400 miles, are not likely to present so compact and homogeneous a body of beliefs and practices as the Banks' Islands. The diversity of language which is so conspicuous between the northernmost and southernmost islands of the group would suggest a difference much wider than actually exists between their customs and superstitions. But the people are in fact the same throughout, with various degrees of admixture, and the dialects are soon seen to be, in fact, dialects and not separate languages; and so there can be no reasonable doubt that, with whatever variation here and there, the notions of the people concerning the other world, and their superstitious practices, are substantially the same throughout the New Hebrides. If so, as the difference between what is believed and practised in the Northern New Hebrides and Banks' Islands is not great, what has been already given as prevailing in the Banks' Islands will stand good to a large extent in the New Hebrides also. A single example will suffice to show how complete is the identity both in language and belief between the two extremities of the group.

In an account of Anaiteum given by a missionary visitor, the "gods" of the people are called *Natmus*. Besides the god Nugerain, to whom the creation of the island was ascribed, there was a "multitude of spiritual beings" who are called *Natmases*, to whom prayers were made and sacrifices offered, and who were supposed to have power over the elements, crops, and disease. It is evident that these *Natmases* are the Mota *Tamutes*; the word is the same on the face of it (Note 7); and one proof of unity such as this is of more value for the understanding of the subject than a number of points of diversity observed, and very imperfectly ascertained, in different islands of the group.

It appears that the small island of Futuna, which lies a little away to the eastward of the main line of the group, is inhabited by a people speaking the Polynesian language, but not physically different from the Melanesians of the other islands. The same is the case in the little island of Niua, in the islet of Fila, and is part of the mainland of Fate, Sandwich Island, and in the middle division of Mae, Three Hills. In these it is most probable that something remains of the beliefs and customs as well as the language of the eastern islands.

At Mae, then, remains one decided mark of Polynesian character—a hereditary chieftainship with the power of the *tapu* attached to it. Whatever appearances may induce visitors, or indeed missionaries, who take it for granted that there are chiefs among all savages, to think that the leaders or most prominent persons who appear are the chiefs of their respective places, it is pretty certain that in the Banks' Islands, and New Hebrides generally, there are no chiefs in the sense which the word bears in Polynesian Islands; there are no men distinguished by higher or sacred blood, none who have an official and political position which they inherit and transmit to their posterity. In Mae, however, and probably among the other Polynesian-speaking communities, there are hereditary chiefs, who as children can succeed to their fathers, and who alone possess the power of the *tapu*. This at once makes a great difference; but whether there is much besides which these Polynesian people hold and practise unlike their neighbours, or whether their neighbours have received from them anything not known in more purely Melanesian districts, as they have received circumcision, is not ascertained. At Mae circumcision is not a religious rite, nor has it apparently any superstitious associations. It prevails very generally in the Southern New Hebrides, which have no doubt received many immigrants from the Eastern Polynesian Islands; but it is unknown in the New Hebrides north of Ambrym, and in the Banks' and Solomon Islands; except in the pure Polynesian settlements.

At Mae they distinguish between the spirits (if they think of more than one), who correspond to the *Vuis* of the Banks' Islands, and the spirits which are the ghosts of dead men. A ghost is called *Itua*, the Maori *atua*; when seen, an *Itua* is red, like flame; and there are certain places and stones which are sacred and unapproachable by those who do not know the *Itua* to which they belong. In this it is probable enough that the notion is not strictly limited to the dead. A libation is offered to an *Itua* on drinking kava, and a fragment of food from a meal is in like manner offered; in this the object of the action is the commemoration or invocation of the recently dead. A certain Tarake is esteemed as a spirit—a *matiytiy*, not a dead man, and it is possible that he may be a deified ancestor of the chiefs; supposing the Mae people to be sufficiently Polynesian still to have ancestors of whom they conceive. The place of departed spirits is Bulaiva. There is nothing in these beliefs at all different to what obtains elsewhere; but so little is known that the supposition may be entertained that, if the old and undisturbed ideas of the native mind could be reached, something from the eastern islands would still be found to be

retained, together with the Polynesian language, dress, chiefs, and *tapu*.

Of the northernmost islands of the group more can be ascertained, and it will be seen that the native notions and religious practices are substantially the same as those of the Banks' Islands, as the dialects spoken are very closely akin. Of the great islands of Espiritu Santo and Malikolo, the largest of all the group, very little is known as regards these matters; but so much of absolute proof exists of a common population that it would be difficult indeed to believe in any considerable variation in other things. They may have different names in different islands for the supernatural beings who are the subject of these stories; and there may be various ways of sacrificing or of holding communion with the dead; but substantially the practices and beliefs of all the Northern New Hebrides are the same, and the same with those of the Banks' Islands.

The identity of the language is conspicuous, however mutually unintelligible the dialects may be; and whenever a native of one of these islands may land he may find his due place in the *gamal*, the clubhouse of the *Suge*. What is chiefly remarkable as showing how comparatively modern are these diversities, even of language, is the identity in all these Northern New Hebrides of the division of the population into two "sides of the house," which obtains in the Banks' Islands (Note 8). A native of Merlav, Star Island, the nearest of the Banks' Group to the New Hebrides, will go over to Maewo, Aurora Island, the northernmost of the latter group. Just as if he goes to one of his own group, he will find a different dialect which he can hardly at first understand, but he will know who are his *sogoi*, who belong to the same "side of the house" with himself; so if he paddles over to Maewo he finds a different speech, which he has to learn, but his own *sogoi*. But whereas at home at Merlav all the stories are of Qat, at Maewo Qat is unknown, and they say that Tagar is the *Vui* who created them. If a Maewo man, again, goes to Araga, Pentecost Island, he goes to his own people, his *sogoi*, and it is perfectly known who they are. Again, an Araga man goes across to his *sogoi* at Lepers' Island, and the people there who have intercourse with Espiritu Santo know equally well who are of their "side" there. It is evident, therefore, that in the Banks' Islands and Northern New Hebrides the people are one, and that there exists an institution prior to their diversity of language and of legends. It is impossible to doubt the substantial identity of the population throughout the group, but whether the Polynesian influences from the east, which are plainly visible, or whether other causes have made a considerable change in the more southern islands, is

not easy to discover. A comparison of what is known of the northern and southern islands will leave very little doubt but that a certain knowledge of the beliefs and customs of any one island would explain almost everything which a visitor observes.

In Maewo, Aurora, the most northern of the New Hebrides, they distinguish as in the Banks' Islands between the spirits who never have been men, *Vui*, and the ghosts, *Tumate*. Of the *Vuis* whose names are known, Tagar takes the place of Qat as the legendary maker of various objects; Qat is unknown. The foolish brother of Qat, Tangaro-loloqong, is represented by Suge-matua, who always did things wrong when Tagar was doing them right. No sacrifices or prayers are made to Tagar, he is only the subject of stories; he stayed at Maewo long ago, made men, pigs, fruit-trees, and went off in a canoe.

Other *Vuis*, nameless and unknown to all but those who have special communication with them, are approached at stones upon which particular leaves are laid; not by any order of men, but by all as they have the fancy, or get introduced by another. Stones also in houses called *tangaroa*, or carried about the person, bring *mana* with them, because of the *Vui* connected with them. So also the stones for rain and sunshine, for giving abundant crops of bread-fruit, yams, or taro. Snakes and owls also in some places are representatives of *Vuis*, and give men *mana*.

The *Tumates* are addressed in prayers, and something in the way of sacrifice of food is offered to them. Places where remarkable men have been buried, whether recently or in times beyond present memory, are sacred, not to be approached but by their owners, who make prayers there to the *Tumate*.

They call the soul *tamani*; on leaving the body it goes on the road to Panoi to the northern point of the island, where there is a deep gully down which they pass. Before leaving the world, they stay some time at this place, and some are heard at play, others crying with grief and pain, the lately dead who have just become aware of their condition. When the *Tumate* makes the descent it finds two *Vuis*, Gaviga and Matamakira, on either side the path, trying to wound it with their spears. Further on is a pig which will devour all who have not in their lifetime planted the Pandanus, which supplies the fibre for mats and baskets. Those who have planted one, find it at hand and climb out of the reach of the pig. Those also who have not killed many pigs for feasts can make no progress, but hang on the branches of the trees that overhang the beach. In Panoi the ghosts are very black, they eat excrement, they live in a dim and unsubstantial place, where all the trees have red

leaves. Below this Panoi is another, in which those who descend into it turn into burning embers. It is by *Tamates* that diseases are brought, and through them that charms are worked. The story of the origin of death by a woman putting on again her cast skin, and the belief that snakes take the form of men, is the same as in the Banks' Island.

Next to Maewo is Araga, Pentecost Island. The people believe that Tagar came down from heaven and made things, and then went back; and that he is still able to help, and is therefore addressed in prayers. When Tagar was making things, another *Vui*, Suqe, was with him, but was always doing and proposing to do what was wrong. Tagar planted the rind of the yam, Suqe the inner part; Suqe wished men only to die for five days, but Tagar made them die right out; Suqe proposed that there should be six nights to one day, but Tagar made them equal. Tagar had and has a wife and children, and many brothers were with him on earth. The *Vuis* which belong to stones are not the same as Tagar and his brothers: if they have names they are only known to those who know the stone and its *Vui*. Sacrifices are offered to Tagar and other *Vuis* on their stones; a man who wishes for their favour gives the man who knows the *Vui* a pig and mats, and he rubs the stone with cocoa-nut. There are places where snakes are believed to be belonging to some *Vui*; those who know them sacrifice to the *Vui* through them as a medium.

It is by the *Tamates* that disease is caused and that charms work. When a man dies his *nun* leaves the body; the body of a person of consequence is buried in the place, and pigs are killed at the death-meal whose *nun* follows his. The ghosts meet at the southern point of Araga, nearest to Ambrym; at Lingling, where there is a stream which they cannot cross, and where they are heard dancing, drumming, and whistling. When they descend to Hades they leap off a projecting tree (Note 9), and a shark waiting below bites off the noses of those who have not killed pigs, or complied with some other custom of the country. They perish finally; but yet whether there are some who never leave the island, or whether they can come back, ghosts haunt the country in abundance, especially where the dead have been buried. If seen they are like fire. The places where dead persons of consequence are buried are thought sacred; or it may be a place which ghosts are supposed to haunt. In these sacred spots sacrifices are offered. Not every one can go into such places, but only such as have a special interest in each. Such persons to propitiate the ghosts, who are always feared, take mats, food, pigs living or cooked, and leave them in the sacred spot. In such places also the fragment of

food by which another is to be bewitched is left, and as it decays the life of the person aimed at is drawn out by the ghost. To ghosts, also, prayers are offered. It cannot be said that this is a worship of ancestors; it is the ghosts of the lately dead who are feared, propitiated, or invoked. The belief in the change of some snakes into men is very strong.

In Lepers' Island, Opa, opposite to Araga, they call the *Vui*, using still that word, who made things Tagaro. *Suge*, they say, was with him, always disagreeing. When the time came for his departure, Tagaro paddled away in a canoe, and since then things have been changing for the worse. Prayers are addressed to Tagaro, and to *Vuis*, which have stones or snakes appropriated to them, who also go by the name of Tagaro. The sacrifices are obscure; a man who has access to a *Vui*, or Tagaro, in some sacred place, or by some stone, will receive pigs, money, and mats for his intercession, but he is not known to offer them. He takes the same to introduce another to his sacred place or stone. Ghosts, on the other hand, do not appear to have prayers or sacrifices offered to them; but it is they who cause disease, and by their means that magic works. Weather doctors work by stones and leaves; but in the cure of diseases, which is much in the hands of old women, recourse is rather had to *Tamates*.

The soul is called *tantegi*. On the fifth day after death, at the death-meal, they throw some of the food on the grave before they eat themselves. The souls on the way to the receptacle for Opa *tantegis*, which is *loloboetogitogi*, goes first to the lake on the top of the island, at the edge of which there is an active volcanic vent. There they stay for a hundred days, with Galeon, who stops them on the road. When they leave him they have to meet a pig, who will devour those who have not followed far their *suge*.

Passing southward, the next island is Ambrym, distinguished by its vast volcano. A visitor will see there two objects which are not seen in the northern islands. Large figures, screened with bamboos and profusely ornamented and painted, will be found in the villages, and will naturally be taken for idols (Note 10). They are, however, made and kept in memory of some persons of consequence, and are set up at the great feast, perhaps a hundred days, after death. That they do not represent ancestors is pretty certain: the very oldest can be but few years old. The custom is in all the islands to bury persons of consequence in the village by the side of the open space which is kept clear for dances and other common purposes. The grave is covered with stones built up like a wall, and stones of a convenient size for seats, or for a standing-place for an

orator, or for killing pigs upon at a feast, are placed near. These stones are treated with a certain respect by persons of no position, because of their association with the great man who is buried near, or with feasts which they themselves have never provided. The drums also are erect, the hollowed logs of trees as elsewhere, but not lying horizontally as in the islands to the north. Their top is fashioned into a grinning face; and if the drum be the image of a venerated ancestor, the blows of the performers are struck upon his stomach. A drum is part of the furniture of a village or of a rich man's establishment all through the islands; those that stand thus erect are more conspicuous, the other kind being often covered from the weather; but it must be thought very improbable that they are in any way idols, or indeed, except by the way, put to any superstitious uses, no songs or dances in Melanesia being known to be employed in a religious way.

There is probably very little difference between the customs of the people of Ambrym and Malikolo, or the neighbouring island of Api or Tasiko. Beyond these comes Mae, which is the furthest island to the southward now visited by the Melanesian Mission.

Of Sandwich Island, Fate, and the three islands that lie beyond, which are all occupied by Presbyterian Missionaries, very much the same account is given. They are said to believe at Fate in six future states, ending in annihilation, and their "worship of ancestors" is confined as elsewhere to the recently dead. The "two gods" to whom they are said to trace the origin of all things, Mauitikitiki and Tamakaia, seem by their names to belong to the Polynesian inhabitants of the island, as does their Hades, Lakiuatoto (Note 11).

Of Eromanga it is said that their "great god and creator" is Nobu, who after making men at Eromanga, went off to another land. The spirits of the dead go eastward, and also roam the bush. Men at first went like pigs, and pigs walked like men. The first of the human race was a woman, and then her son. They have, as at Mota and Florida, a story of a man swallowed by a whale. The Missionary, Mr. Gordon, who was murdered by the natives of the island, reported "a species of idolatry connected with the worship of the moon, the image of which they exhibit at their idolatrous feasts, which are regulated by the moon and are great abominations." It may well be doubted, however, whether this is a correct interpretation of what was seen (Note 12). That the same superstitions about spirits and their connection with stones are prevalent as farther north is apparent, with the same beliefs in the powers of men who are called priests to control the weather and cause or cure diseases.

The residence for many years of two missionaries on the southernmost island of the New Hebrides, Anaiteum, has long ago brought the whole people to the profession of Christianity, and their beliefs and customs of old times have passed away. It is evident that, as before observed, there was a substantial identity in such matters between this and the other extremity of the group. The early missionaries reported the people to "live under the most abject bondage to their *Natmases*," taking these *Natmases*, which we have seen to be the ghosts of the dead, for "gods or spirits" (Note 13). When it is said that the fat of pigs was offered to the "gods," and that on occasions of feasts no one tasted the food until a part had been presented to the "gods" by a "priest," there can be little doubt that what are called gods are these *Natmases*, as the "priests" are the near relatives. The belief in other spirits, not the ghosts of the dead, appears equally clear in the account of "sacred stones," sacred places, and sacred objects, without number," and the "minor deities," said to be a progeny of Nugerain, and called "gods of the sea, of the land, of mountains and valleys, &c." Doctors for the weather and for diseases had the same apparatus of stones, bones, and leaves as elsewhere, and the same charms were practised by means of the fragments of food. Nugerain was the creator, who fished up the island, as Maui did New Zealand; a legend probably borrowed from the Eastern Islands. What is mentioned as a "vague and dim tradition of the Fall," is no doubt an incorrect rendering of the common story of the origin of death in breaking through the primitive practice of casting the skin.

The place of departed souls was called *Imai*, which had two divisions; the one a "sensual paradise," to which nothing in the beliefs of the northern and western islands bears any resemblance; the other, a "most miserable place," where they fed on the "vilest refuse," according to the common belief elsewhere, and were "tormented." One of the torments mentioned clears away the difficulty raised by the mention of torment, which is quite foreign to the common Melanesian conception of Hades, and points to an agreement with the almost universal belief in some kind of ordeal to be gone through on the way to Hades. This torment is the piercing of the nose and ears with a sharp instrument; and the true story is probably the same as that told at Florida, as the statement that "stinginess" is the crime chiefly punished in Hades is to be understood by what they say in Lepers' Island, and elsewhere, about the fate of those who have not killed pigs for public feasts.

In two points a difference is seen between Anaiteum and

the greater part of Melanesia. Human sacrifices are said to have been offered but rarely. The question arises whether it was really so; whether the man was not killed, because he was supposed to be the cause of some calamity. The Sun and Moon also, especially the Moon, "held a distinguished place among the gods of the Anaiteumese," as also at Eromanga. That the Sun and Moon are spirits, or inhabited by spirits (*Vuis* in the language of the Northern New Hebrides is commonly believed; but that they should be worshipped and sacrificed to is not a common thing. Looking, however, at the whole Archipelago from the Torres Islands to Anaiteum, it cannot fail to be seen that with all diversities of dialect, and minor differences in other ways, the beliefs of the people concerning the unseen world and the practices that follow upon them are substantially the same.

Of New Caledonia and the Loyalty Islands very little can be said. The absolute power of a few hereditary chiefs in these latter islands points to something different from the common Melanesian population, as the pottery and elaborate irrigation described by the first visitors to New Caledonia gives a notion of another stage of civilization; though pottery is also made in Espiritu Santo, and water is in many islands ingeniously brought among the cultivations. It seems certain that prayers and food are offered to the recently dead; what besides has been related by visitors is either a repetition or an obvious misrepresentation of what is common elsewhere (Note 14).

CHAPTER VII.

THE SOLOMON ISLANDS, SAN CRISTOVAL.

THE three hundred miles that separate the Solomon Islands from the Banks' Islands, carry the voyager into what he cannot fail to observe to be, in some respects, a new world. The difference between the elegant plank-built canoes, and the clumsy tree-trunks of the islands he has left behind, is striking. He sees at once that he has come into the region of the betel, and is told that he has passed out of the region of kava. He knows that it is now possible to sail on without losing sight of land to the Asiatic continent itself, and if that should seem too far, the great island of New Guinea, the Papua, from which the whole race around him takes its name, is comparatively close before him. Whatever of difference, however, may be observed in the people will, as has been remarked before, seem to make

them less Papuan; their more frequently straight hair and oblique eyes, and their generally shorter stature. The origin of this difference, and the degree to which it obtains, not in the physical form, but in the customs and belief of the people, is the most interesting subject of inquiry in the Solomon Islands.

Diversity in language still prevails, but the area over which one dialect extends is generally larger, though local differences are found everywhere. The distinction between the people of the sea-coast and of the inland villages is marked in the larger islands, not by diversity of language so much as of feeling; and yet in some places where European intercourse has corrupted the population, it is maintained almost entirely by the adoption of children from inland. All the dialects spoken have evidently the same origin with those of the Banks' Islands and New Hebrides, and the people are undoubtedly Melanesian, as in those islands, Papuan, not Polynesian. Small colonies of pure Polynesians are found in small islands of the group.

The islands visited by the Melanesian Mission are San Cristoval, Ugi, Ulawa, or Contrariété, Malanta, Guadalcanar, Florida, Savo, and Ysabel. It is probable that to divide these into two groups will not only be a matter of convenience, but will represent an existing difference between the customs of those who occupy the two extremities. The islands of Guadalcanar and Malanta stretch side by side for a hundred miles, and the ends of each will belong to the south-eastern and north-western divisions respectively. We may take San Cristoval with the small neighbouring islands, Ulawa, and the south-eastern ends of Malanta and Guadalcanar, as forming one group, and the further ends of the last-mentioned islands with Florida, Savo, and Ysabel as forming another. Of the first, San Cristoval may be taken as an example; whatever prevails there in belief or in practice will be found with little variety in the surrounding parts.

In San Cristoval a difference is recognised between beings of a higher nature than human, and the spirits of dead men; but everything in the nature of a *cultus* is directed to the dead. A spirit, never human, is called *Vigona*, but only one *Vigona* is spoken of, and that was a snake; its outward form or manifestation, that is, is said to have been a snake. The name of this spirit, who was female, was Kahausibware, her abode was on the mountain at Bauro in the centre of the island. It was she who made men, pigs, fruit-trees, yams, the animals, and their food with which the island is furnished. After a while, the race of men being in its infancy, a woman left her child in the house while she went to work, in charge of Kahausibware, whose child in some way it was. The child so annoyed the *Vigona* by its

screaming, that it strangled it with its tail. The mother coming in found the folds of the serpent still wound round the body, and seizing an axe began to chop the snake to pieces. As she chopped it asunder, the parts came together again; but at last the spirit gave in, cried out that she would go away, and that the woman would soon be sorry for having used her so badly. The spirit-snake accordingly made its way down a watercourse to the sea and left the island. She first swam to Ugi, but still seeing the mountain at Bauro, she went further to Ulawa, and thence to the south-east end of Malanta, but still there was in fine weather the sight of her former home. Finally she reached Marau, the end of Guadalcanar, nearest San Cristoval, and the view of the mountain of Bauro being shut out by the nearer hills, there she rests till the present day. Snakes upon that mountain are venerated as being the progeny or representatives of Kahausibware, but they are not *Vigonas*. No prayers or sacrifices are offered to Kahausibware; she is nothing but the subject of stories. Since her departure, all things have deteriorated. The same story of the origin of death in the putting on again of the cast skin is related concerning the woman whose child was strangled by the snake, as is current in the Eastern group.

The spirits of dead men are called *Ataro*. When a man dies his soul (*aungana*) goes from his body to a small island near Ulawa, Rondonmana. At first the ghost feels like a man; he gives the news of his place, and does not realise his condition. After some days a kingfisher pecks his head, and he sinks into the shadowy existence of a real ghost. They do nothing, but stay for ever in a cave, or ranging aimlessly about the islands. Men landing under stress of weather often see them on the beach, but on close approach they disappear. They have no power, but exist with an empty life, and are afraid of living men. The kingfisher is killed at Bauro, because of its treatment of the ghosts, but young ones spring up from the blood of all that are killed.

It is a matter of much difficulty, as elsewhere, to reconcile the concourse of dead men's souls, in such a receptacle as this, with their presence and activity in the neighbourhood of their graves and among their living countrymen. It is possible that, if common people on their death disappear in their souls to Rondonmana, and never really become *Ataros*, men of rank and position, those in one word who have had *mana*, are thought to undergo a different change, and remain as *Ataros* near their homes. It is also possible that it is conceived that there are two souls, the *anima* and the *animus*, one of which goes to Rondonmana, and the other remains as an *Ataro*. No clear

conception is formed by the natives : some will say one thing, some another ; but all will be agreed that common men when they die do not become the *Ataros* that are feared, invoked, and propitiated. To have power as a ghost, a man must have had it when alive ; the more he has when alive, the more he will have as a ghost ; and while alive he gets his power from the dead who have gone before him.

The bodies of common people are thrown into the sea, but men of consequence are buried. After a time they take up the skull or some part of the skeleton, and put it in a small building in the village, where upon occasions they pray or sacrifice to obtain help from the spirit. Ghosts (*Ataros*) are seen and heard to speak ; their appearance is that of persons lately dead, their voice is a hollow whisper. On occasions, however, when the people of a place are gathering for a fight, some one, who has an *Ataro* with whom he communicates, will speak with the *Ataro's* voice loudly, prophesying success, and stirring up fierceness and courage. It is the *Ataros* of those who have lately died that have most power ; that is, if of late a man of great *mana* has died. If in any place there has been no great man of late, they think most of one of the former generation, who has never been superseded ; but after a time all are forgotten, or thought to have little *mana*, whom no one remembers in the flesh.

In this way, as there will be a general recourse to the aid of some famous dead warrior or leader, so individuals, families, and sets of neighbours will have some one of their own to whom as an *Ataro* they will apply. The ghosts are believed to fight among themselves with ghostly weapons. If then a person is sick in a way that is supposed to show that it has been done by a ghost, his friends will form an opinion as to the ghost belonging to some unfriendly party who has done it. They therefore, or the one among them who has access to the powerful ghost of their party by the medium of his skull, or some relic of him, will call upon that ghost to attack the other who has done the mischief. The two ghosts fight, but mortals only know of the combat by the result. The ghost who wounds his adversary causes thereby the sickness or death of one of his adversary's living clients.

The manner in which the help of a powerful *Ataro* is obtained by prayer and sacrifice on a public occasion is thus described in an account written by an educated Christian native : " When our people want to fight with any other place, the chief men of the village and the older men and the youths, with those who know how to sacrifice, come together to the place in the village which is sacred to the *Ataro*, whose name is Harumae. When they are thus assembled to sacrifice, the man who acts as

chief sacrificer takes a pig; and if it be not a castrated pig they would not sacrifice it to that *Ataro*: he would despise it and not eat it. Not the chief sacrificer, but those who help him kill the pig by strangling it near the sacred place. Then they cut it up, taking care that no blood drops on the ground, to prevent which they put it into a bowl. Then the chief sacrificer takes a piece of the flesh, and dips up some of the blood in a cocoa-nut shell, and goes in with both to the sacred house, and calls the *Ataro* thus, 'Harumae! Chief in war! we sacrifice this pig to you that you may help us to beat those people, and whatever we shall carry off from that place shall be your property, and we too will be yours.' Then he too burns the piece of flesh in a fire on a stone, and pours the blood on the fire. Upon that the fire flames up and reaches the roof, and the place is filled with the smell of the pig, a sign that the *Ataro* has heard. But when the man goes in, he does not go boldly, but with awe; and this is a sign that he is going into the sacred house, that he puts away his bag, and washes thoroughly his hands, lest the *Ataro* should despise him." It is to be observed that this Harumae has not been dead many years—the elder people of his place well remember him; nor was he a great fighting man, he was as his name, "Feed the enemy," implies, a kind and generous man, but he was thought to have much *mana*. The ghost of another man of very different character has also a great reputation in the same place, *Tapia* by name, who in his lifetime was no great warrior, but very powerful with charms and curses; he is much dreaded now, and the place where he was buried is dangerous to approach, especially in the rain. It is on a little point of land, and if a rainbow is seen, then it is a sign that the *Ataro* is present. If a man should go there alone in the rain, *Tapia* will take his soul, and tie it to the great banyan that is there. When he gets home he feels his whole body in pain, and sends for a man skilful in such matters, who finding where he has been, says that *Tapia* is wishing to eat him. He then sacrifices on behalf of the sick man, gives *Tapia* some pig's flesh or a fish, and begs him to eat it instead of the man; finally brings back the soul with him, and the man recovers.

The dead are thus applied to for help in battle, in sickness, and also to produce abundant crops. Not every one knows how to address them, but the prayers that are muttered are handed down from father to son, or taught for a consideration. It is worthy of notice that the inland people are thought to have much more *mana* in these matters than those on the coast; there are some in the Island of Malanta so full of it that when they come down to the beach villages they dare not spread out their fingers, for to point the finger at a man is to

shoot him with a charm, and one stretched out would be a provocation to an attack. Mischief is worked in these islands, as elsewhere, by fragments of food, or a bit of something from the person which, when put into the place considered sacred to the *Ataro* will bring disease or accident. To cure disease, besides the sacrifices as above mentioned, to propitiate the adverse ghost, there are means of bringing *mana* to bear from the *Ataros* by charms muttered over water for the sick person to drink, and by the use of certain leaves and roots, amongst which ginger has a conspicuous place. Rain, sunshine, wind, and calm, are equally controlled by the charms which have *mana* from the dead. In all these matters the lately dead are thought most powerful.

At the death-feast a piece of food is burnt as if for the eating of the ghost. If a person of great consequence, a figure may be made of him after his death, for the ornamentation of a canoe-house, or of a stage put up at great feasts. These images are hardly idols, though food may sometimes be put before them, though to remove them would be thought to bring down punishment from the dead man upon those who should so insult him. In these islands, however, it is a favourite amusement, or was so in former times, to carve figures which, though often taken for idols, had no superstitious meaning whatever.

The native conception of the forms of the ghosts which haunt the sea was curiously shown in a very elaborately ornamented canoe-house at Wango, now in decay. One of the many pictures of native life showed men in a canoe being shot at by ghosts. The shapes of the ghosts are made up of fish; the head is a fish, and the hands and feet, all projecting angles of the body, are in the form of the heads or fins of fish, and fish serve as arrows or darts. The notion is that ghosts make fish, such as flying-fish and gar-fish, dart out of the sea upon men in canoes, and that any one struck by them will die. The sea, with which the living men have so much to do, is equally the scene of the activity of the ghosts. In any danger they are invoked, or propitiated with an offering of an areca-nut or some food. Sharks, especially those of a dark colour and large size, are thought to be *ataros*; they are prayed to in danger, and offerings are made to them. At Ulawa they seem particularly to be regarded; one in particular, whose name is Sautahimatawa, to whom sacrifices are made of money and porpoise-teeth, which are more valued than money. In that place, if a sacred shark has attempted to seize a man, but he has escaped, they are so much afraid of his anger that they will throw him back into the sea to be devoured. These sharks also are thought to help in catching bonitos, for which *mana* is supposed to be particu-

larly necessary. Until a boy has caught one of these fish he has not taken his place in the world. In order to gain *mana* for the purpose, boys and young men will spend even months in separation from the rest in some canoe-house; where they sacrifice, or rather some one who has *mana* does so for them, and seek the necessary spiritual force. They paddle out continually till they succeed. Sometimes a man who has *mana* will put his hand on a boy's, and so enable him to catch the fish. This is the only custom resembling an initiation known in this division of the Solomon group.

Stones are, as everywhere, regarded with reverence, where, from their appearance or situation, or some association, they have come to be thought connected with an *Ataro*. Those which are in the open are treated with respect: no one will go too near, or sit upon them; those that are out of sight in the bush make the place sacred, and sacrifices are offered upon them, or near them, of money to their spirit. But as the *Ataros* connected with them are of ancient times, few know much about them, or give them more than a vague respect.

CHAPTER VIII.

SOLOMON ISLANDS, CONTINUED. FLORIDA, YSABEL.

THE further division of the Solomon Islands comprises the north-western ends of Guadalcanar and Malanta, Florida, Savo, and Ysabel. There is a connection between the languages generally, much closer than is found on the eastern side of Melanesia; the dialect of Savo, however, being very distinct. Over a considerable part of this area also the three or six exogamous divisions of the people of Florida prevail; at least among the people of the coast. The inland people of Malanta are reported by the others to be very different from them, which is accounted for on the supposition that the seafaring people who occupy islands close to the shore are a recent colony from Guadalcanar, from whence even yet, as they live by trade, they procure the greater part of their food.

The central position of Florida, between Malanta, Ysabel, and Guadalcanar, gives it a representative character; and it is fortunately not difficult to ascertain generally what are the religious beliefs and practices of the people.

What is at the outset very remarkable is, that they will not allow that there are any beings of a supernatural order that have not been men. The word used for such beings as are

approached by prayers and sacrifices, *Tindalo*, is, as is common, that used for the ghosts of dead men; but it is strange to meet with the belief that there are no supernatural beings corresponding to the *Vigona* of San Cristoval, or the *Vui* of the Banks' Islands. Soul or spirit is *Tarunga*; this is with the living man, and leaving him at death becomes a *Tindalo*; remaining a *Tarunga*, a spiritual, not a material, being; and no *Tindalos* will they allow to exist that have not been the *Tarunga* of a living man. Hence, is a difference and a difficulty in the account of the origin of mankind. The first was a woman named Koevasi, but how she came into existence no one knows. She made things of all kinds, and became herself the mother of a woman, who again had a child from whom the people of the island spring. Koevasi was the author of death by resuming her cast-off skin to satisfy her granddaughter, according to the widely-spread tradition. She was also the author of the different dialects of the neighbourhood; for having started on a voyage, she was seized with ague, and shook so much that her utterance was confused. Wherever she landed, the people caught from her their almost unintelligible speech. Koevasi thus, though declared to be a human being, corresponds to the various supernatural persons to whom the origin of mankind is ascribed throughout Melanesia; and accordingly she is not the object of any worship, only the subject of legendary tales.

The Florida belief concerning the region of departed spirits is parallel with what has been already given, but in one interesting particular it varies or improves. Nowhere else apparently is there a "ship of the dead." All *Tarungas* from Florida assemble after death at a western point of the island, in an inhabited country where the path of the *Tindalos*, the dead, goes through the cultivated ground (Note 15). The ghosts spend some time at this place, and their dancing is heard at night. After a time a canoe comes over to them from Guadalcanar, and takes them to Galaga. They land on a rock near the shore, and there for the first time they become aware that they are dead. They then meet with a *Tindalo*, who carries a rod, which he thrusts through the cartilage of their noses to prove whether they are pierced; if so, there is a good path which they can follow to Marau, the extremity of the island. If the nose is not pierced, the ghost is not allowed to follow the path, but has to make his way with difficulty and pain. Living men in canoes nearing the shore at this place (Galaga) see the forms of the ghosts, and recognise individuals, but on nearer approach they disappear. A man still alive at Gaeta, having to all appearance died, revived to relate that he had reached the

canoe, which came for him and his companions in the night; but that a tall black *Tindulo* forbade him to come aboard, and sent him back to the world again.

A native account of the Florida belief concerning their *Tindalos* is given in a translation in "Mission Life" for November, 1874. The point of particular interest is that it points to, but does not discriminate, the *cultus* of certain *Tindalos* who are not, as universally elsewhere they seem to be, the ghosts of recently deceased powerful men of the place. The spirits of men recently deceased do undoubtedly become objects of worship as elsewhere; being supposed able to help their friends, they are invoked and they have food offered to them, but they cannot be called ancestors, much less gods. Besides these there appear legendary ancestors of the divisions of the population which are not tribes in a proper sense, though much more like it than in the more eastward islands; for the members of these divisions have much more in common than the disability of intermarriage when they have a legendary common ancestor, and, with a reference to him, some food from which all are bound to refrain. It does not appear, however, that worship, prayers, or sacrifices are frequently offered to these legendary ancestors; they are *Tindalos* because they are dead, but they have become mostly the subjects of stories, and are not brought into action upon the living as are those recently deceased. But there are, besides *Tindalos*, spirits called *Keramo*, who may almost be called gods, because, though only the spirits of famous warriors, they have only been known in Florida in their spiritual state and power, and never in human form. In fact, it is said that their names and their *cultus* have only recently been introduced from the islands further west, where the Florida people suppose a stronger *mana* to prevail than among themselves. It is said that these *Keramo* are famous fighting men of recent times in the islands beyond, whom the Florida people now have recourse to for aid in war, as they used till lately to invoke their own dead warriors. Together with this *cultus* of the *Keramos*, they say has been introduced from the west, the practice of taking heads; and, what seems very questionable, considering the presence of undisguised cannibalism in the more easterly Solomon Islands, the practice of eating human flesh in sacrifice. According to their own account, the Florida people till lately did not eat human flesh, and now only eat it in sacrifice. They say that the Savo people do not even yet; and generally that it is the inland people in all the islands who eat human flesh for food, and not those who live on the coast. It is probably true that the notion prevails everywhere that *mana* is obtained by partaking of such food, and that in some places

people only have become cannibals who eat it as they would other flesh.

The way of obtaining the assistance of the *Keramo*, the *Tindalos* said to have been lately introduced, is that which is common elsewhere, by prayer and sacrifice, and by means of certain leaves, ginger, bark or roots of plants, through which *mana* is conveyed, partly by eating or chewing the things, partly by tying them as amulets about the person. The knowledge of these things, as elsewhere, resides with men who have been taught, or have bought the knowledge from former possessors, and some will be in communication with one, some with more than one of the *Keramos*. The heart of a pig is offered and burnt in sacrifice, because being in the middle of the body it is thought the best representative of the whole. What is burnt in sacrifice, whether to a *Keramo* or to a recently-deceased *Tindalo*, is supposed to become his food, in a spiritual sense; without any very clear conceptions, it is everywhere supposed that the immaterial ghost appropriates the corresponding part of the food.

Stones do not appear to occupy an important place in Florida, yet there are stones that are sacred with the notion that a *Tindalo* haunts the place, and can be approached there; food is put on such stones, with calling on the *Tindalo*, and when afterwards eaten it conveys *mana*. Money is offered and left in small quantities.

Charms for causing and curing disease, for producing calms and winds, rain or sunshine, operate as elsewhere by means of the *Tindalos*, the spirits of the dead. In whatever way anything extraordinary is produced, whether it be by a well-directed aim or a plentiful haul of fish, whether by skill, strength, or good luck, all is ascribed to the *mana* obtained for a *Tindalo*, from a ghost.

Snakes that haunt a place which is sacred to some *Tindalo* are themselves sacred as being his property. There is one in Savo which causes the death of every one who happens to see it. Alligators also are supposed in some cases to be *Tindalos*; a man will fancy that one is possessed by the ghost of some friend, and will feed it, or even sacrifice to it. Such an alligator will become an object of general reverence, and will even become tame.

The world is supposed to consist of several heavens overlying one another, making four or five habitable surfaces like the earth—a notion which runs through several Banks' Island stories also. A story is told of Vulcanangela, who getting out of his depth to recover the arrow with which he was shooting fish, was carried off and swallowed by an enormous bonito. After

some days he felt the fish ground on a sandy beach, and cut his way out with the piece of obsidian he had kept in his mouth for sharpening his arrows. He found himself at the foot of heaven, and, seeking for a place to warm himself, sat in the path of the sun, who was just coming out in likeness of a man with a walking-stick. The stick struck against Vulcanangela, and the sun becoming aware of his presence, asked him how he came there, and on hearing his story took him with him as he climbed to heaven. Midway there was a village and the sun's house, where Vulcanangela remained a long time a guest with the sun's wife. Everything above was as on this earth; they were on the upper surface of our sky. After a while, looking for a lost arrow, the man found that it had fallen down a hole, through which the earth was to be seen. A longing for his home then seized him, and the sun and his wife pitied him, and let him go. They made a cage for him to sit in, and collected a vast quantity of a kind of supple-jack to let him down. He reached the earth in safety, shook the supple-jack as a signal that he was safe, and the sun let go the line, which fell on a hill in Florida, where that kind of creeper is now very abundant. Vulcanangela is now a *Tinanlo*, whose name is not lightly mentioned.

It is at Belaga, in Florida, that an institution corresponding to the *Tamate* of the Banks' Islands and Northern New Hebrides is found. There is a district of the coast which at uncertain intervals of some years is taken possession of by those who have been initiated. At this time, those who have not yet been brought in are admitted, even if very little boys. There is nothing to be initiated into; but those who are acquainted with *Tindalos* and the ways of approaching them, sacrifice continually to one and another. The whole company is supposed by the women, and those who are not yet brought in, to be in communication with the dead, that is with the *Tindalos*; no one dares to approach the place, and no one thinks of resisting or complaining if their property is carried off or themselves ill used. At the end of the time a great piece of the handiwork of the *Tindalos* is displayed on the beach, and all, women included, flock to see it. It is a lofty framework of bamboo, decorated and painted, and has hitherto been accepted and viewed with awe, as the work of spirits and not of men. The sight of similar things in the Salagoros of the Banks' Islands by many Florida people has begun to shake the credit of this imposture; as the free entrance of Solomon Islanders, who being strangers require no initiation and pay no fees, has helped to explode the secret of the *Tamate* associations there.

The very large island of Ysabel, at its south-eastern end, is inhabited by people differing very little in language from those at

Florida, and with customs which if they vary at all, only show the better the general character of the superstitions of this region.

With them the soul, the *Tarunga*, of the living man, becomes a *Tindalo*, and the place of these departed spirits is the little island of Laulau. Living men visiting the island see the rocks on which the ghosts, who fly through the air, first become aware of their sad condition; they see forms as of men at a distance, which disappear at a nearer approach; they find the paths round the island nicely kept, and the bathing-places cleared of stones; if they hang up fish in the trees in the morning they find them carried to another place; and marks made in the road, as guides to those who come after, are taken away. On the top of the island is a pool of water, Kolapapauro, and thither the ghosts repair, to Bolafagina, who is the lord of the place. Across the pool is a narrow tree-trunk, along which the ghosts advance. Bolafagina examines their hands; those who have a triangular mark cut in their hands, following the line of the forefinger and thumb, are received by him, and live in happiness under his rule; those who have no mark are thrown by him into the gulf, and perish.

The *Tindalos*, however, are active in their old homes; it is they who cause and remove some diseases, and by whose power all charms are effectual. When a man is sick in such a way that a ghost is supposed to be the cause of it, a doctor who understands the matter is called in to find out who it is. He dangles a stone or some heavy ornament at the end of a string, and calls the names of all the lately deceased; when the right name is called, the stone moves. By the same process he discovers what the ghost will take to leave the sick man—a fish, or a pig, or a mash of yams. Whatever he may desire is taken and offered at his grave, and then eaten, and the sick recovers.

When a chief dies they bury him; but so that by keeping a fire over his head they are able to take up his skull for preservation in the house of the relative who succeeds him. An expedition then starts to obtain heads in his honour; any one not of his place will be killed if they fall in with them; the heads which add *mana* to the new *Tindalo* are arranged upon the beach belonging to his place. Till the heads are procured, the people of the village do not move about. The grave is built up with stones, and sacrifices are offered to the dead upon it. Of course the living chief knows that he will receive this worship after his death (Note 16). Common people's ghosts are not considered; but it should be observed that though a chief's son or brother succeeds him, it is by virtue of no superior ancestry, but because the wealth and the *mana* of the deceased are

handed on to him. There is nothing to prevent a common man from becoming a great chief, if he can show that he has got the *mana* for it.

The knowledge how to make prayer and sacrifice, and whom to address, is not in the hands of all. One who knows a particular *Tindalo* goes to the place where he is buried and makes his prayer. If it be a sacrifice, the pig is killed by stifling it, and the head is laid upon the grave-stones. The man who officiates cuts its neck, and all present join in the prayer, calling the name of the dead and asking for *mana*. The flesh is cooked and eaten near the place by the sacrificing party, part being burnt by the grave-side as the dead man's share. Sometimes fish or other food is offered in the same way, and unhappily there can be no doubt but that human victims are sometimes offered. This horrible rite, they say, has been lately introduced, as at Florida; but whereas at the latter place they deny that more than a very little flesh is eaten as a sacrificial act, and that of an enemy already killed in battle, it is certain that in Ysabel the human victim is killed and eaten as in the sacrifice of an animal.

The notion is that much *mana* is added to, and in return received from, the *Tindalo* by such a victim. The practice, they say, has not been introduced into Savo; there common people at death are thrown to the sharks, and chiefs are buried by the sea, with stones built over them on which sacrifices are offered. These are the "devil-stones" of traders, and English-speaking natives.

To obtain *mana* for fighting, the ghosts of the recently dead are applied to; leaves of particular kinds are brought together, with ginger, which has a sacred character in all this region, and the bark of trees, scraped and eaten. To obtain good crops, food is taken to certain stones thought to be sacred to some *Tindalo* of ancient times; the food is laid on the stones with prayer that it may get *mana* and then eaten. Fish is used in the same way for success in fishing. There is a certain sacred pool of water, into which scraps from a person's food whose life is aimed at are thrown by those who know the place and the *Tindalo* there. If the scraps of food are quickly devoured by fish or a snake, the man will die; otherwise the *Tindalo* is unwilling to do the mischief desired of him. Sharks and alligators receive in Ysabel the same occasional worship as *Tindalos*, which is given in all this region; but sharks particularly in Savo, where they abound.

The people of the south-western part of Ysabel have suffered very much from the attacks made upon them from year to year by the inhabitants of the further coast of the same island, and of

neighbouring islands with whose exact position they are not acquainted. The object of these attacks is to obtain heads, whether for the honour of a dead or living chief, or for the inauguration of new canoes. Throughout the Solomon Islands a new war canoe is not invested with due *mana* until some man has been killed by those on board her; and any unfortunate voyagers are hunted down for the purpose on the first trip or afterwards. The people of Rovigana, known to traders as Rubiana, carry off not only heads but living prisoners, whom they are believed to keep, till on the death of a chief, or launching of a canoe, or some great sacrifice, their lives are taken. It is from these people that, as they say, head-hunting and human sacrifices have been introduced into the nearer islands of the group.

In all these islands there is a vague belief in the existence of wild, not really human, men. The belief is by no means limited to these larger islands, but prevails throughout from Mae in the New Hebrides to Ysabel, and is expressed in stories more or less extravagant. Some credence has been given to these stories in regard to the larger islands, where the existence either of a much lower type of humanity, or of some large simians, has been thought possible. The fact that the same stories with modifications are told everywhere is the most complete disproof that can be given. In the little island of Mae they are, or were, for they are now extinct, seen on the Three Hills; at Ambrym they are seen basking on the rocks on the slopes of the great volcano; in the Guadalcanar they are met with where the inhabited sea-coast is left, and adventurous visitors begin to climb the lower ranges of the lofty mountains. Everywhere these beings are seen singly, or rarely male and female together, sometimes with one young one. They always carry baskets, live in trees, wear no clothes, feed on wild fruits, and tear and devour men whom they can overpower. In the several islands they are either much larger or much less than men, with very long arms, or with nails like birds' claws, or with knees and elbows the wrong side before. In one word, the same stories are told from New Zealand throughout Melanesia to the Asiatic continent itself. The question is, whether the story in any form is true anywhere. If true somewhere, as certainly not in the Melanesian islands, how have the Melanesian people learnt them? Are they the common inheritance of their ancient stock? Do they point to the real existence of man-like apes or ape-like men in far distant times and lands? or are they everywhere alike the creatures of imagination which delight in producing monsters for the wonder of children and of strangers?

CHAPTER IX.

CONCLUSION.

A GENERAL view of the Religious Beliefs and Practices in the islands of Melanesia comprised in the foregoing survey, will certainly show a general agreement throughout, more thorough than perhaps would be anticipated. It is seen that almost everywhere, though the belief seems to fade away towards the westwards, the existence of spiritual beings, distinct from men living or dead, is believed in. It is true that the conception can hardly be that of a purely spiritual being; yet by whatever name the natives call them, they are such as in English must be called spirits. To these beings the creation of men and animals, and the furnishing of the habitable world is ascribed; but they are not generally the chief objects of worship—not those by whose agency will be brought about what the natives who seeks supernatural aid will most desire. It is to the spirits of the dead that recourse is had in witchcraft, in prayer in time of danger, in the sacrifices which gain strength and victory in war.

A clear and well-understood distinction, no doubt, cannot always be maintained, and the confusion may be thought, moreover, to be partly caused by a transition through which the practices and beliefs have recently been passing. While at Florida the veneration of stones occupies a very small space in the religion of the people, and prayers are not offered at all to their legendary creator; whereas in the Banks' Islands almost no religious rite is unconnected with the use of stones as media for spiritual influence, and prayers are addressed to their *Vuis*; it may not unreasonably be conjectured that a change has been going on by which the worship of the dead, and all practices connected with the belief in their active powers among living men, have come more into vogue than in olden times. Whether this has proceeded from the natural development of religious ideas, or whether it has been brought about by influence of communications from east or west, may be a question which cannot yet receive an answer; but probably the practices connected with stones and spirits, not ghosts of the dead, prevail most strongly where there is least evidence of intercourse with another race, that is in the Banks' Islands. At any rate, in all the islands it is plainly believed that power of a spiritual character belongs to the dead, and may be obtained from them by living men. Whatever power of this kind a man possesses is his lifetime, though it may show itself in bodily excellence,

is conceived of as supernatural, and attaching to that part of his nature, his soul, by whatever name it may be called, which not only survives the dissolution of the body, but is even enabled to act more effectively by death. The man of no *mana* in the world has nothing but an empty existence to look forward to after death; but the chief, whose position depends upon, and has been mainly at least gained by, the proofs he has given of the *mana* which is in him, knows that his death will only add to his powers, though it will deprive him of the pleasures and comforts of the flesh. A Melanesian, therefore, whether it be in the islands where spiritual beings, not the ghosts of men, are much regarded, or in those where the lately dead have almost the worship that is given, moves always in a world of which great part is invisible; his body is not all himself; the grave does not close altogether the future for him. By one means or another, by stones or leaves, he can put himself into communication with the unseen powers: he can please them by sacrifices, and he can gain their help by prayers.

Can such beliefs and practices as these be called a religion and treated as a religion by those who are to carry them the gospel? A system in which supernatural powers believed to exist should be sought for and directed by sorcery could hardly be held by any one to be a religion; but it is probably not well to limit the term so strictly as to exclude any belief in beings who are invoked by prayer, and who can be approached by some ritual of communication. It is probably also not wise for any teacher of true religion to neglect or despise, even when he must abhor them, the superstitious beliefs and rites of those whom he would lead from darkness to light. It is far better, if it be possible, to search for and recognise what is true and good among wild and foul superstitions; to find the common foundation, if such there be, which lies in human nature itself, ready for the superstructure of the Gospel. It may surely be said that no missionary who knows and loves his people will ever fail to find this foundation, even among the lowest races of mankind, or find himself utterly unable to say to them: "Whom ye ignorantly worship, Him I declare unto you."

It may be true that there is no moral element in these practices, that no man's life is made better by what he believes, and that there is no prospect of reward or punishment in another world to encourage virtue and to deter from vice. But there is the belief, found among all savage people, in the existence of the soul, and in its continued existence after death; there is the feeling, over and above the desire to obtain what will be useful in this world from spirits, that communication with the unseen world is a thing to be desired for itself. A savage people, if

such are to be found, who have no appetite for intercourse with the invisible, would fail to supply to a missionary a fulcrum by which, when it exists, they may be raised to a higher level. The man who believes he has a soul, and that death is but a change of existence, and that unseen spiritual influence is at work upon him, is in a more receptive condition as regards Christianity, than one whose whole thought is to eat and drink, for to-morrow he dies. He is full of superstitions, and his superstitions will certainly be debasing, and be shaken off, even in Christianity, only with the greatest difficulty, but he will hear the first lessons of Christianity with some glimmering approach to understanding.

It does not appear that the belief in the existence of the soul of man proceeds in Melanesians from their dreams or visions in which deceased or absent persons are presented to them, for they do not appear to believe that the soul goes out from the dreamer, or presents itself as an object in his dreams. It does not also appear that the belief in other spirits than those of the dead is founded on the appearance of life and motion in inanimate things, for such spirits are conceived to possess as property, or to love as favourite haunts, the trees, stones, springs, or hollows, which are therefore considered sacred. But, however, it has come to be so, the belief, the knowledge that a man has a soul, in a different sense from that which can be applied to a brute, is fixed in the native mind, and may give a foothold for an advance into the way of salvation; as indeed a childish belief in superhuman beings may be a step towards a faith in God. The belief in a man that he has a spirit within him, and that his spirit does not die, may be directed to faith and hope in the True God and Eternal Life.

NOTE 1. The banyan has no sacred character of its own, but a certain sacredness attaches to the cycas and the casuarina. Such trees are in no way worshipped, but it is thought that there is something about them which makes them peculiarly appropriate in sacred places.

NOTE 2. There is a stream in Saddle Island, or rather a pool in a stream into which if any one looks he dies; the malignant spirit takes hold upon his life by means of his reflection on the water.

NOTE 3. It may be said to be certain that there is no notion whatever among the natives that the shadow is the soul, though a hold can be got upon a man by means of his shadow. Similarly in Fiji, the Rev. Lorimer Fison writes, "the Fijian word for Soul is Yalo, that for shadow, Yaloyalo. I have not been able to find any trace of the belief that shadow and soul are identical. I believe that Williams' remark about the 'two spirits'

(quoted by Lubbock) was the result of a confusion in his mind, concerning Yalo and Yaloyalo." That the soul and the shadow should be called by almost the same word in Fiji, and by the same word in Mota and Maori, is not by chance; but it is probably a borrowing of the name of a shadow, to express that which is in thought likened to it.

NOTE 4. When a man was shot by a poisoned arrow, the possession of the head of human bone went far to influence the result. If the shooter regained it, he put it in the fire, if the wounded man retained it, he kept it in water; and the inflammation was violent or slight accordingly. The effect of poisoned arrows was in the native view not so much owing to the poison, which is wholly vegetable, as to the human bone of which they are made, and the charms which aggravate the wound.

NOTE 5. If some small thing happens to fall, or suddenly appears, on a morsel of food, it is thought a sign of luck: a man will attain his desire. It is called a *tangarowia*.

NOTE 6. There is a dance which only those can perform who have been initiated, and the initiation is carried on with much ceremony and secrecy. This dance is called the Qat. It is certain, however, that there is no religious or superstitious character about the whole. The initiation consists in learning a song which guides the steps of the dance, and this song is, "Mother! bring my bow here, bring my bow here, that I may shoot a fowl, shoot a flying fowl, bring my bow here!" The name Qat has no reference to the *Vui*, but the name of both is the same—knob or head. That of the dance refers to the head-dress worn by the performers.

NOTE 7. *Natmat* is the equivalent in a neighbouring island in the Banks' group for the *Moto o tamate*, a dead man or ghost. In the Anaiteum New Testament, *e.g.*, Luke vii. 15, the "dead man" is *natimi mas*.

NOTE 8. The people of the Banks' Islands are divided for purposes of marriage, and with regard to nothing else, into two divisions called *Veve*, which are strictly exogamous. Those of either *Veve* are *sogoi* to one another, and call the rest the "other side of the house." The wife never becomes one of her husband's side of the house, but they will say she is at the door-way, half-way across. A similar system, the number of divisions varying, prevails in the Northern New Hebrides, and throughout the Solomon Islands.

NOTE 9. Compare the tree at the Reinga, the New Zealanders' place of descent into Hades.

NOTE 10. Memoir and Journal of Commodore Goodenough, p. 323.

NOTE 11. Commodore Goodenough, p. 321, Murray's "Missions in Western Polynesia," p. 228.

NOTE 12. Murray's "Western Polynesia," pp. 179, 209.

NOTE 13. Compare the fights among the ghosts at San Cristoval, and the belief in ghosts which haunt the sea there.

NOTE 14. Murray, p. 279. Brenchley's "Cruise of the Curaçoa," p. 342.

NOTE 15. Compare the path at Anaiteum, which the first missionaries were unwittingly about to fence across "the path by which the said *Natmases* were accustomed to pass from the mountain to the sea." (Murray, p. 38.)

NOTE 16. "In fact" [in Fiji] "there seems to be no certain line of demarcation between departed spirits and gods, nor between gods and living men. 'I am a god,' Tuakilakila would sometimes say, and he believed it too." (Quoted from Mr. Hazlewood in Brenchley, p. 181.)

DISCUSSION.

Mr. LEWIS thought the mass of information contained in the paper would be most valuable when it could be properly studied in print. On that occasion he would only remark that there appeared to be a strong resemblance between some of the *Vuis* described, and the fairies and dwarfs of north-western Europe. The latter had been with much reason considered to represent an earlier, and in some cases, extinct race of inhabitants, and it might be a question whether the Melanesian legends had a similar foundation.

Mr. HYDE CLARKE said that Mr. Codrington's paper was most valuable, but that unfortunately a discussion could not be fully carried out until the paper had been published. He must repeat his statement that the culture and language of all those regions in Australasia, Polynesia, Melanesia, and Australia, were to be traced to a common origin, with other ancient culture, and, as it seemed, from Africa. The system of secret societies described was most interesting, as it was parallel with those in West Africa, described in the Journal.

The mythology was evidently of the ancient type of fetishism. The distinctions drawn by Mr. Codrington between the "spirits" of men, etc., and those which had never had a human shape, was useful to be borne in mind. What was referred to was not a soul in modern phrase, but that exact verisimilitude, commonly united with a living body, but capable of separation, as exemplified in our own superstitions of the "fetch" or "wraith" of a living being. This was the "ka" of the ancient Egyptians, to be recognised among the Babylonians and Hebrews, and which lies at the foundation of a host of beliefs and superstitions. The oath by the "ka" of Pharaoh was more sacred than the oath by Pharaoh himself. It was the "ka" which furnished the framework for the soul, spirit, shadow, but not necessarily for the life. The "ka" might enter another living body of man or animal, and hence another series of mythological phenomena, from which the doctrines of metempsychosis are derived. This too is most probably the explanation of the mystery of masques, found all over the world, and formerly connected with religious observances. This may be

suggested for the gold masques found in tombs, and the external representations of the Egyptian corpse. The medicine man, who wears the head or masque of a bear, &c., may have attributed to him possession by the animal whose semblance he wears, and from which a mystic power is conveyed. As there is a selection in mythology of the various ancient forms, or a development from ancient forms, it is most important to obtain careful observations like those of Mr. Codrington.

In comparing popular legends we cannot be too careful, lest we might arrive at very strange conclusions. By example, while he was listening to those Australasian legends, he could have believed they were taken from the Babylonian and Assyrian clay tablets now in the British Museum. He could not say if one legend derived from the other, but it did not seem likely at first sight, and he believed that the imagination of the legend-mongers would everywhere spontaneously develop much in the same way.

Mr. BOUVERIE PUSEY remarked that no details were read as to the invisible *Vui* (spirits) supposed by the Mota people to control the powers of nature; he also called attention to the very remarkable resemblance between the secret societies described and the Mumbo-Jumbo associations, &c., of negro Africa.

NOTE on a STONE IMPLEMENT of PALÆOLITHIC TYPE found in ALGERIA. By Sir JOHN LUBBOCK, Bart., F.R.S., M.P., D.C.L., LL.D., &c.

NOTHING which can throw even a gleam of light on the condition and distribution of man in palæolithic times is without interest, and I think therefore that the Institute will like to see a stone implement which I found in Algeria last year, and have sent this evening for exhibition. So far as Europe is concerned, unmistakable palæolithic implements of the Hoxne and St. Acheul type have hitherto, in my opinion, only been found in the centre and south. They have not yet been met with in Scotland, in the north of England, or in Scandinavia. I know that as regards the latter statement I am at issue with some high Scandinavian authorities, but when I was in the north I carefully examined all the large Scandinavian collections without finding a single specimen of a true palæolithic type. True, this is now some years ago; but if such implements have since been discovered, they have not yet been described or figured. Moreover, our eminent colleague, Mr. Evans, has more recently visited these countries, and is entirely of the same opinion. The fact is the more remarkable considering the zeal with which Scandinavian archæologists have collected for so many years. Nor have any implements of these types yet

been described by Russian observers either in European Russia, or in Russian Asia. Some chert implements found in Babylonia approach closely to palæolithic types, but I agree with Mr. Evans* that these are probably neolithic. On the other hand, typical palæolithic implements were discovered by Mr. Bruce Foote in India. As regards North America, there are certainly some types which approximate closely to palæolithic forms; but there are not as yet, I think, sufficient reasons to justify us in attributing them without a doubt to that period. I do not, however, wish to be understood as expressing a decided opinion on the subject; and, indeed, whether they belong to our European types or not, the position in which some of them have been found certainly indicates a great antiquity.

The South African flakes, &c., found by Mr. Busk and Mr. Dale, and described by me in the "*Journal of the Ethnological Society*," 1869, p. 51, are very rude, and some of them may probably be palæolithic; moreover, more recently other rude implements formed of quartzite and other materials, which present true palæolithic types, and closely resemble some of those found in Madras, have been found in Southern Africa. The stone axes collected by Mr. Reade in Western Africa, and which I described and figured in our *Journal* (Vol. I), are, on the contrary, however, all ground.

Coming now to Northern Africa, we have the Egyptian implements to which attention was first called by M. Arcelin. None of those found by that gentleman or by MM. Hamy and Lenormant are distinctly and unmistakably palæolithic in character. When I was in Egypt my attention was naturally directed to this subject, and M. Mariette, I need hardly say, was most obliging in giving me every opportunity for examining the most interesting Museum at Boulac under his charge. I have also seen a great number of the flakes, &c., collected by Dr. Riel at Helouan, but none of them were undeniably palæolithic.

While proceeding up the Nile I lost no opportunity of looking out for flint implements, and have described the results in the 4th volume of our *Journal*. Some of the specimens I found (see, for instance, Plate XVI) certainly seemed to me palæolithic in character. Some implements closely resembling palæolithic types more recently found in the Nile Valley by Professor Haynes, of Boston, were in the Anthropological Exhibition in Paris in 1879.

Coming now to Algeria, although stone implements have been found in numerous localities, and occasionally in some abundance, none of those which I have seen, or which have yet been described, appear to me to be unquestionably palæolithic. That was also the

* "*Ancient Stone Implements*," p. 571.

opinion of Mr. Flower, who gave an excellent summary of what was known on the subject at that date, in the Transactions of the International Congress of Prehistoric Archæology, held at Norwich in 1868; and I infer from the absence of any reference to Algeria in the chapter on river-drift implements in Mr. Evans' "Ancient Stone Implements" that he shares this view. No doubt, indeed, flakes and other very rude objects of stone have been met with in Algeria, which may be palæolithic. None, however, of those figured, nor any which I have seen, can be said to be distinctively of the more ancient types. For instance, the flakes, &c., found by M. Jullien near Kerchela, and now in the collection of the Société de Climatologie of Algiers, and those found by M. l'Abbé Richard, at the Pointe Pescade, and others more recently found at Ouargla, though in some cases very rude, offer no special peculiarities which would justify us in referring them to the palæolithic period. Some of my friends in Algiers are indeed disposed to do so; but we must never forget that very rude implements were in use, not only down to the end of the stone age, but even in that of bronze. Moreover, in the manufacture of the most beautifully formed implements, rude flakes were necessarily struck off. But if no implements belonging to unmistakably palæolithic types have yet been found in Algeria proper, on the other hand those discovered by Dr. Bleicher in a rock shelter at Tlemcen, near Oran, appear to be truly palæolithic.

On the whole, then, we may conclude that we have as yet no clear evidence of the existence of Palæolithic man in Northern Africa, excepting in Egypt and Oran.

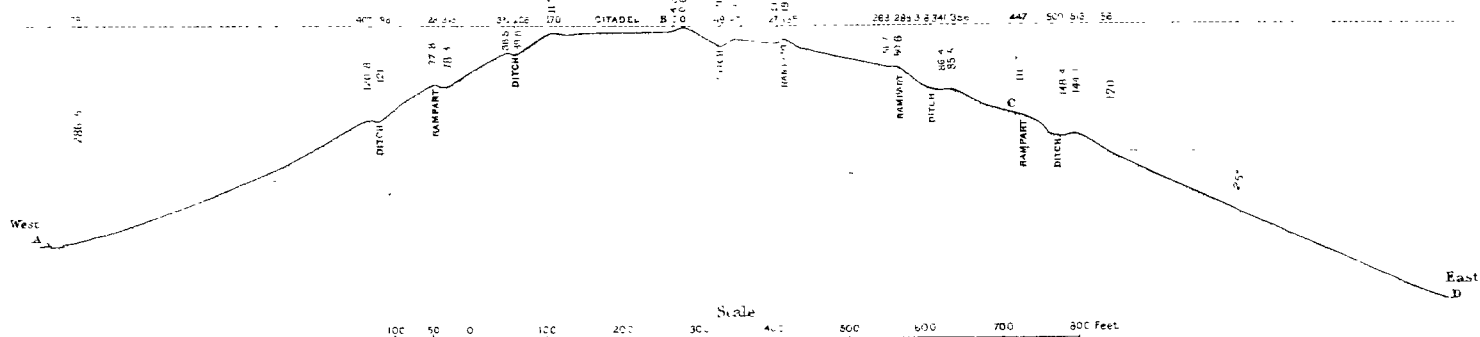
Under these circumstances, the implement which I have now the honour to lay before the Society appears to me to present considerable interest, as it will, I think, be admitted to be of a distinctly palæolithic type.

It is $4\frac{1}{4}$ -inches in length by 2 in breadth, is of the type known to the St. Acheul workmen as "Langues de Chat," and somewhat resembles the Hoxne type figured by me in pp. 353-4 of "Pre-historic Times" (4th Ed., Figs. 195-8) or still more closely Fig. 450 in Mr. Evans' work, though the Ogee curve is not so marked. It has a rather heavy butt, is brought to an edge all round, and is considerably more convex on one face than on the other. The workmanship is bold, and shows considerable skill.

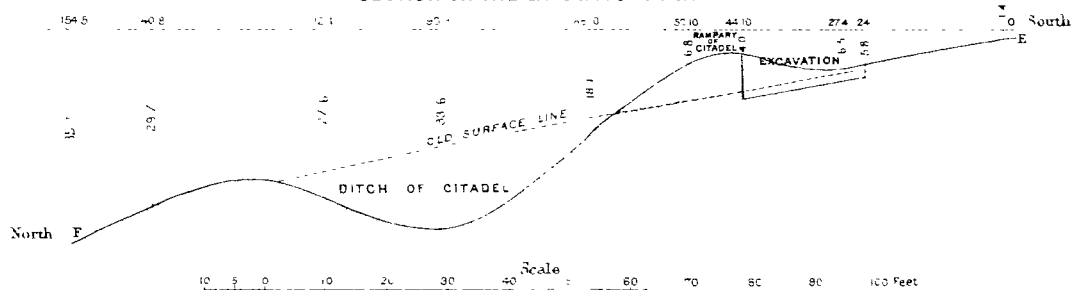
The accompanying figure (Plate XVI) will give a better idea of it than any description in words.

It is of dark brown flint, and I picked it up on the surface, near Kolea, about a quarter of a mile to the north of the remarkable monument, known as the Tombeau de la Chrétienne, and supposed by some to be the tomb of Juba II.

SECTION ON THE LINE A.B.C.D. OF PLAN.



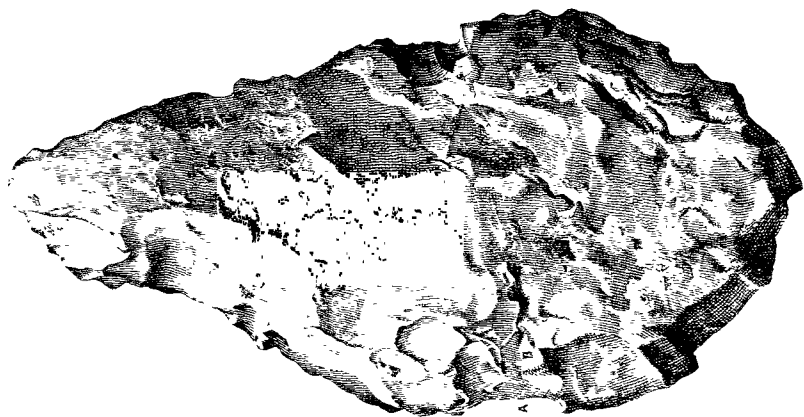
SECTION ON THE LINE E.F. OF PLAN



PLAN AND SECTIONS
OF
HEREFORDSHIRE BEACON CAMP

Surveyed and drawn by Major General Pitt Rivers, F.F.S.
September 1878





STONE IMPLEMENT OF PALÆOLITHIC TYPE.
FOUND IN ALGERIA.

It has been supposed by some that instruments of this kind were fastened to wooden handles. At the part AA are slight indentures which may have served to retain the ligatures by which it was attached, and I may observe that at B are several glittering surfaces, which tend to strengthen this supposition, as they were probably produced by the friction of the ligaments.

I may add, in conclusion, that last autumn I visited the interesting dolmens at Guyotville, and was sorry to find that, owing to the spread of agriculture, they were in imminent danger. I have reason, however, to believe that steps have now been taken which will preserve those that still remain.

CAMPS on the MALVERN HILLS.

By F. G. HILTON PRICE, Esq., F.G.S., &c.

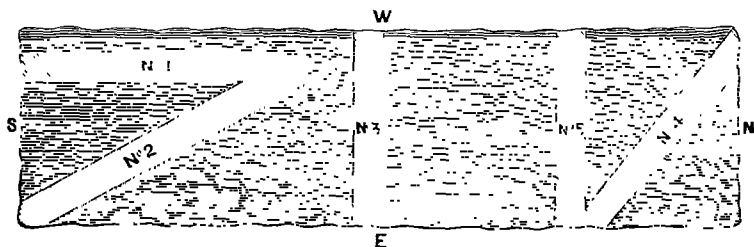
THROUGH the kind offices of Mr. George H. Piper, F.G.S., of Ledbury, permission was obtained from the Earl Somers to excavate in any part of the camps on these hills. Accordingly on the 8th September, 1879, some labourers were obtained, and excavations were commenced in the camp on Hollybush Hill on the south side of the Malvern range.

This camp is of considerable extent, following the shape of the hills as camps of this class always do. It has a circumference of 5,700 feet, and a length of 2,000 feet. A deep ditch and a rampart encircle the two hills, *i.e.*, Hollybush and Midsummer Hill, and in the glen between the two on the south side, is the site of a British town about 1,100 feet in length. In the interior of the camp, on the Hollybush Hill, are many hut hollows, or circles where some sort of habitation probably existed. Some of these were opened, but without making any discovery. On the east face of Midsummer Hill, which is 958 feet high, and considerably higher than Hollybush Hill, are several lines of hollows, which have been habitations. Mr. Lines, a well known local antiquary, and who has paid much attention to these camps, states that there are 10 or 11 ranges of terraces, with no less than 214 hut hollows visible, and 30 more under the brushwood. I failed to discover so many, as the hill side was covered with a dense mass of bracken, &c., which hid the surface from view.

The principal exits from the camp are on Midsummer Hill, leading down to the valley on the north, called the Gullet Pass, and on the south-east in the ravine between the two hills, leading down to the Hollybush Pass. Along this ravine are four tanks or reservoirs having the ancient dams for holding back the water still in existence; they are supplied by two

springs, which rise in the camp, the first of these dams also forms part of the rampart.

On the south side of the camp on Hollybush Hill the rampart is much higher, and is strengthened by a second one being thrown up inside it. At this point the so-called Earl of Gloucester's ditch, which enters the camp on the north-east side running along the ditch of the camp on that side, goes off down the hill over the Hollybush Pass, and runs up the side of Ragged Stone Hill beyond. Of this ditch I shall have more to say further on.



In the centre of the Hollybush Camp is a raised mound, which has hitherto been looked upon by local archaeologists as a "long barrow;" it was mainly for the purpose of digging into this mound that we met on the 8th September; as soon as I arrived on the spot, it was hardly necessary to look at it twice to convince myself that it was no long barrow at all, and further that whatever it might have been thrown up for, it was many centuries more recent than the age of the camp.

Mr. Piper was unable to ascribe to it a high antiquity, as its shape indicated it to be post Roman, but said that it had been suggested that it might have served as the place of interment for the slain in some battle or skirmishes of the middle ages, or even of earlier date, as Cymric tribes are supposed to have held the territory west of the Severn, until they were driven over the Wye by Athelstan in the 10th century; then, again, it is known that a great battle was fought on the Malvern Hills, and this might have been raised over the slain.

This mound or barrow, which is symmetrical, is situated north and south; it is 150 feet long by 32 feet broad, and about 3 to 4 feet high, and is contained within a slight trench thrown up inwards.

The excavation was commenced at the south end, by running a trench north and south, 2 feet wide, and another on the south-east corner running diagonally, until it joined the first trench, both being about 60 feet long; these were dug to a depth of about 4 feet, until the surface rock was met with; the earth thrown out, although mixed in parts with large fragments of

angular pieces of Laurentian rock, &c., was for the most part fine, such as would be found in a garden; pieces of Upper Llandovery sandstone and quartzose grit were the only remains we met with that did not belong to the hill, proving to us that it was made-earth we were digging into.

We next made a trench east and west through the centre; this we cut to a depth of 4 feet with no more interesting result.

At this juncture 30 or 40 members of the Malvern Field Club arrived, who had been invited to inspect the opening of this supposed barrow, by their excellent President, Mr. Piper. Little more was done in the barrow that day, as there were sundry hut hollows, and a circle that members of the club requested we should open. These were opened, but with no satisfactory result.*

The next day operations were recommenced, with a view of solving the problem of the barrow; a trench 2 feet wide and 4 feet deep was cut from the north-west corner diagonally across, and another one east and west, in which latter, at 10 feet from the west side, and at a depth of 3 feet, the earth became much blacker as it was thrown up; upon examining it we found it contained fragments of charcoal, cinders, two small pieces of burnt brick, one having the impression of a dog's foot, and a thin copper or bronze ring; this blackness was but a mere patch, as below, the substance of the mound bore the same appearance as what we had thrown out before. Having cut these five trenches more than equal to twice the length of the whole mound, and finding the result so unsatisfactory, it was soon abandoned.

Some days after, on the 17th, having a few hours to spare, and observing a similar mound on the slope of a hill south-east of the Herefordshire Beacon Camp, a little to the north of the Divination Stone, and due west of Clutter's Cave, I resolved to open it, as it might, perhaps, throw light on the former one.

This mound measured 89 feet long by 17 feet broad, and $2\frac{1}{2}$ feet to 3 feet in height. It had a north-easterly direction. A trench was cut $2\frac{1}{2}$ feet wide and $4\frac{1}{2}$ feet deep from west to east, and from north to south a trench of similar dimensions was dug, extending for 38 feet. All the earth thrown up was of the same quality, being fine and suited to a garden. Whilst occupied at this mound, General Pitt Rivers arrived, whose opinion I at once solicited; he informed me that it would be only waste of time to continue the digging, as he, in company

* On the eastern face of Midsummer Hill five of the so-called hut hollows were subsequently opened within the camp. In one, at one foot from the surface, a piece of brick, fragments of charcoal, and a quartz pebble were met with.

with Canon Greenwell and Professor Rolleston had opened precisely similar mounds in Oxfordshire, Surrey, and elsewhere with like results. But whilst at Dartmoor, some years back, he observed some of these raised mounds, and upon making enquiries ascertained that they were thrown up as artificial rabbit burrows, and had been in use for many years for the purpose with great success. They are even made there at the present day. General Pitt Rivers having fully convinced me that this mound and the so-called long barrow on Hollybush Hill, about which local poets and writers of the guide books had written so much sentimental nonsense upon the remains of ancient British warriors therein interred, had been raised as an artificial rabbit warren, perhaps a few hundred years ago, I ordered the men to fill up the trenches at once. Notwithstanding two or three days had been occupied in opening these mounds, it was satisfactory to prove that they were of the same character as those which had so puzzled Professor Rolleston, Canon Greenwell, and General Pitt Rivers, until the latter discovered their origin.

I am, however, reminded by Mr. John E. Price, F.S.A., that some significance must be attached to the strange deposit of relics in the long barrow. He remarks that the mound and its contents may be Roman after all, and be an illustration of a *Botontinus*,* or one of the terminal marks which it was the practice of the surveyors of old to construct at the confines of territory or estates. In defining the boundaries of land the *agrimensors*, or land surveyors, selected various signs, the future discovery of which would make the lines of demarcation clearly significant. At such limits they would deposit not only charcoal but broken pottery, the latter of various kinds and often purposely fractured, gravel, pebbles, pieces of metal, coins, pitched stakes, ashes, and lime, over such a deposit they would erect a mound or hillock of earth. Such an elevation of earth might in course of time become destroyed, but the objects so protected would remain, and indicate plainly to the professed surveyor their meaning and intention. It is certainly a coincidence, as my friend suggests, that we should have met with such a deposit in the so-called barrow, and that it should be so

* Consult the text books of the surveyors in Lachman's edition of the "*Gromatici Veteres*," 2 vols., 8vo., Berlin, 1848-52, for example:—"In limitibus vero ubi rariores terminos constituimus, monticellos plantavimus de terra quos Botontinus appellavimus." "*Faustus et Valerius*," p. 308: also "*Et intra ipsis (the Botontoni) carbones et cinis et testa tusa coopernimus, Trifinium quam maxime quando constituimus cum signis, id est cinis aut carbones et calce ibidem construximus et super duximus et super toxam monticellum constituimus.*" The author of this treatise remarks that even in his day ignorant people often confused such liminary *Botontoni* with sepulchral barrows!

closely associated in its situation with the respective boundaries of *territoria*, or, in other words, adjoining counties.

Herefordshire Beacon Camp.

This is one of the largest and strongest earthworks in the country, and has usually been looked upon as of British origin, and I see no particular reason for doubting it at present.

Some archaeologists assign it to Caractacus, and suppose it was constructed after the Britons or Cymri had obtained some knowledge of the Roman method of castramentation, to oppose the legions under Ostorius Scapula. Another goes so far as to say that the camp was constructed some 400 years before Julius Cæsar landed.

The fortifications enclose the highest hill and the two adjoining spurs, which is well known as the "Herefordshire Beacon." This was carefully surveyed by General Pitt Rivers, who is author of the annexed plan. A deep ditch and a high rampart encircle the Beacon Hill. The outer rampart is 6,800 feet, or 1 mile 500 yards in circumference; the greatest length from north to south is 933 yards. The whole camp is said to contain 44 acres.

The highest portion of the hill is 1,390 feet,* and forms what may be termed the citadel of the camp.

The natural shape of the top of the hill was probably conical, and has been made to assume its present form by the high rampart which has been thrown up round it. It is surrounded by a ditch about 7 feet deep, and broad enough for a chariot to be driven round it. Formerly there was but one regular outlet from the citadel, and that was situated upon the south side leading by a causeway into the camp. There is now another entrance from the north-east side, but it is probably of modern construction, made for the convenience of travellers and for cattle. The outer ditch varies in depth from 12 to 18 feet, and the top of the rampart is from 30 to 40 feet in width. Following this ditch on the western side of the hill we come upon the principal road or trackway from the camp trending in a south-westerly direction down to the old road, called the Silurian Pass by Phillips. The next way out of the camp is in the south-east corner, which leads down by a zigzag path to the Earl's Dyke, past the Thorntree (a well known landmark on these hills). On the eastern side, below the walls of the citadel, is another outlet, leading through a natural hollow in the hill side, which is much in the shape of an amphitheatre, at which

* Phillips places it at 1,118 feet

point man probably aided nature for the purpose of forming a place of assembly.

There are a great many depressions on the surface of the whole camp, which were probably hut hollows.

I am of opinion that the portion of the camp occupying the northern spur of the hill, just above the British Camp here, was fortified by a ditch and rampart at a subsequent period to the formation of the main camp, probably thrown up for the purpose of strengthening it. On the western side of this are three sallyports, leading down to a well at the foot of the hill.

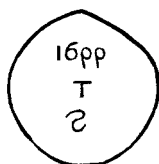
Upon the flat surface at the base of the western slope of the Beacon, is an earthwork of peculiar form: its measurements I have not yet taken; but it is surrounded by a rampart—close by it, in fact passing through a portion of it, is an old trackway leading up to the camp, joining the main road leading from the camp at the western side, trending south-west and joining the old Silurian Pass of Phillips.

Upon the east side of the citadel and just outside the ditch is an outwork, thrown up for the purpose of commanding the eastern slope, which the eastern rampart does not effectually do.

On 11th September, in the presence of Mr. Piper and several local archaeologists, several hut hollows or pits were opened in the citadel of this camp. The first one was situated a few yards to the eastwards of the centre, and was 10 feet in diameter. This I propose to call Pit No. 1. At the depth of 1 foot were found two small fragments of red pottery and the base of a vessel of red earthenware, probably of not earlier date than the 16th century. At 2 feet fragments of red ware and pieces of black pottery—one was a rim of an urn containing coarse grains of quartz or silex which was of early date; an iron arrow-head; a fragment of corroded iron; a piece of a flint flake or strike-a-light. At $2\frac{1}{2}$ feet a hone stone and a projectile of pipeclay or limestone of irregular dimensions, and a quartz pebble—the latter was probably used as a sling stone, or charm; an iron nail 3 inches long; a fragment of bone; a terebratula from the Upper Ludlow formation: a bronze ferrule (?) an iron buckle; a tooth of pig and other bones not identifiable.

We found the bottom of this pit at 3 feet 8 inches below the surface.

Pit 2.—This was a depression in the surface just below the rampart of the citadel on the east side. The turf was carefully rolled off and just below was found a piece of sandstone of irregular form with the following inscription engraved thereon:—



At 2 feet down a piece of iron was found, and a fragment of red pottery. At $2\frac{1}{2}$ feet, a red earthenware pot or jug, having a brown glaze top with concentric markings round the neck (the handle wanting); this must be of about the 16th century. At 3 feet 7 inches centre of the pit a molar of pig, and large stones mixed with clay, and a clay projectile $1\frac{1}{2}$ inch long by $1\frac{1}{8}$ broad and 1 high—weighing $1\frac{1}{4}$ oz.; and at 4 feet beneath a stone mixed with charcoal, teeth of pig, and a piece of iron.

On the margin of the pit at 1 foot from the surface and 10 feet from the outer edge of the eastern rampart was a small wall of stones; the ground immediately below it was hard and much discoloured by burning, and contained a quantity of bits of charcoal; the stones of which the wall was composed bore marks of fire.

This place might have been used as a fireplace. Alongside of the stones was a thick stake of wood, apparently driven in with the object of keeping the large stones in position.

This pit was 15 feet long by 9 feet broad, and the bottom was found at 6 feet from the surface.

Pit 3 was on the south-west side of the citadel, and appeared a well defined hollow, which was opened without any results being obtained.

Pit 4. This excavation was made in a hollow in the surface of the citadel on the north side close under the rampart; as soon as the turf was removed the earth was observed to be very black and many pieces of coarse black pottery were found. At 1 foot from the surface a fragment of iron armour (?), half a horseshoe, and piece of hoop-iron were met with; and at 20 inches a spur. On September 15 this pit was continued and a large quantity of bones were met with of domestic animals—many of the bones had been split for the supposed purpose of extracting the marrow, the greater number of bones were found at 2 feet from the surface and the larger was about 1 foot in thickness; this was much mixed up with fragments of coarse black pottery (which may be late Cymric, but difficult to separate from Romano-British); a hone stone (?) and quartz pebbles. At 3 feet a small whetstone or burnisher made out of a piece of

slate perforated at one end for suspension, which had been used for polishing arrow-points upon; it is $1\frac{1}{2}$ inch in length; and a piece of the horn of a red deer $\frac{1}{4}$ inches long, which had been cut with a sharp instrument. These burnishers are very ubiquitous, having been met with by Canon Greenwell, Professor Rolleston, and General Pitt Rivers in British Barrows, &c.; by Dr. Schielmann, at Hisárlík, the supposed site of ancient Troy; in Roman and Mediæval excavations in London and elsewhere; and I am informed that similar articles are made to this day for burnishing. So this little object which I hoped would help to prove the antiquity of the pits really proves nothing.

Finding such a quantity of bones in this cutting, the trench was extended in form of a triangle, following the line of depression as shown on the surface. It was $3\frac{1}{2}$ feet broad, 27 feet in length from north to south, and 27 feet from east to west. This was evidently a kitchen midden. The bones from this pit I took to the Royal College of Surgeons, where Professor Flower and Dr. Garson, to whom my best thanks are due, took great pains in identifying them.

They are as follows:—

Ox—acetabulæ, humerus, ribs, portions of jaw, teeth, tibia, one complete, one partially so (one with epithise), astragali, and one radius.

Pig—several teeth and jaws; 2 tibiæ; 1 humerus and terminal phalanx of foot of domestic pig.

Horse—one tooth.

Sheep—5 teeth, humeri and portion of scapula.

Dog—jaws, teeth, and tibia of dog.

Bird—bones of a galinaceous fowl.

Deer—metatarsal bones and ulna of Roe.

„ astragali, teeth, jaw, forehead (2 portions), portion of scapula, portion of humerus, articular head of femur, os calcis, 2 vertebræ and portion of acetabulum of deer.

Pit 5. This was a hollow in the surface of the western portion of the citadel; the trench was about 6 feet in length, with a breadth of 2 feet, in a north and south direction; the earth beneath the turf was very black, and at first looked a likely place for finding remains in; two fragments of red pottery were thrown out; but we came upon the rock at $2\frac{1}{2}$ feet down, so closed up the trench.

Pits 6 and 7 were slight hollows on the north-eastern side, a few feet from the rampart of the citadel; nothing but a few pieces of black pottery just beneath the turf were found, so the holes were filled in.

September 12, being a wet windy day, two men were told off

to make a trench across the outer ditch on the north side of the citadel; this cutting was 12 feet long by 3 feet in breadth; at 2 feet the old surface line was found strewn with fragments of charcoal; some of it was from thorn wood, pieces of Upper Llandovery sandstone flags, and a rounded quartzite pebble. It is surmised that these pebbles, which are not met with nearer than the Severn, may have been sling stones.

The next section was made in the outer ditch on the western side of the camp, where the level of the ditch and top of the rampart are equal. I may as well state that the whole of this side of the citadel has much suffered from the effects of denudation; that the action of frosts and rains have so disintegrated the rocks that it has from time to time crumbled away and fallen into the ditches, and for the distance of some 70 yards or so, quite filled them up; the ramparts have likewise suffered, and are in consequence of denudation very low and weak on this side of the camp. On all the other sides the terrace walks on the top of the ramparts vary from 40 feet to 20 feet in width, whereas on the western side they are under 6 feet, but gradually widen and become higher towards the north and south sides of the earthwork. There is very little doubt that the western side was never so strongly fortified as the others, as there was less need of deep ditches on that side, on account of the natural steepness of that part of the hill and the fact of its overlooking the country of the Silures, who were in all probability the people who defended the Beacon Camp against the enemy coming up from the plains of Worcestershire and Gloucestershire.

Tacitus informs us that the Silures were the most determined of all the tribes of Britain. He describes them as being of swarthy complexion, curled hair, of great ferocity and audacity; and being of a warlike nature gave the Romans much trouble.

They were finally subdued under Ostorius Scapula, A.D. 70-78, before which they abandoned their own country for that of the Ordovicians (the people of North Wales). They took post upon the ridges of some lofty mountains, where the sides were gently inclined and approachable; they piled up stones as a rampart.

It has been asserted by certain local archaeologists, generally looked up to as authorities, that the reason for the weakness of the ramparts and the breaches on the west side is due to the camp having been stormed and the ramparts thrown down.

Mr. Lines states that we find a much greater breach on the western vallum of Midsummer Hill, extending 600 feet, from which it is probable the two forts were dismantled at the same time and from the same quarter.

This is undoubtedly another instance of the effects of denudation, the ditches being level with the tops of the rampart.

General Pitt Rivers, who is our best authority on British earthworks, examined the fortifications of the camp with me, and he was of opinion that the absence of the ramparts and ditches here could never have been caused by the camp having been stormed from that point. Apart from this side looking over a friendly country, there is no better reason for the absence of the ramparts than that already deduced, *i.e.*, that the west side suffers most from the severe weather, and that the whole of the so-called breaches have been caused by denudation, which I may add still continues with great rapidity and may be seen upon all the slopes on the western side of the Malverns.

The section made in this outer ditch was 12 feet long by 3 feet in breadth; at a depth of 3 feet some black pottery and a sling stone were met with. In the course of the excavation of this trench several large blocks of Laurentian rock (natural rock of the hill) were found at a depth of 6 feet from the surface; this was evidently the bottom of the ditch, as no evidence was discovered of its having been disturbed by man.

On the main way from the camp on the south-west side there are several depressions or hollows visible on the sides of the way. In one of these an excavation was made 7 feet long by $5\frac{1}{2}$ feet wide and 3 feet in depth, but it contained nothing.

19th September. A section was cut into the rampart on the north side of the citadel, 4 feet wide by 22 feet long; this was from the inner side of the hollow or flat up to the centre of the crest of the rampart.

Beneath the turf on the flat and the lower portion of the interior slope, the soil was very dark, in parts almost black. At one foot below the turf a fragment of bone was thrown out, pieces of charcoal, and a quartz pebble; at 20 inches, bones. At $1\frac{1}{2}$ feet, the thickness of the turf and surface soil, the old interior slope of the rampart became visible; it was composed of angular fragments of the rock, as thrown out of the ditches below. At a depth of 18 inches resting upon this interior slope and on the flat cutting at the same depth, bones and teeth of pig were found. At 2 feet, tusk and tooth of pig; at $2\frac{1}{2}$ feet in the middle of the rampart, several fragments of coarse black pottery, some having a rim, and bones of ox; at 3 feet, pottery; at 4 feet and $4\frac{1}{2}$ feet, charcoal; at 5 feet, in the centre of the rampart, decayed bones and charcoal; at this level was a hard seam composed of clay, burnt ashes, and charcoal; in it a quartz pebble was found. At $5\frac{1}{2}$ feet, the old surface line of

the hill was discovered; it was composed of a layer of bluish coloured clayey soil, having a most disagreeable smell, compared by the men to that of exploded gunpowder, about 3 to 4 inches in thickness; this was all that remained of the original turf of the hill upon which the rampart was thrown up. In it fragments of charcoal were found. The excavation was continued to a depth of 7 feet 2 inches, but without further results being attained.

20th September. A section 16 feet long by 4 feet wide was made through the outer rampart on the south side of the camp facing the Thorn Tree. I was obliged to leave before it was completed, but General Pitt Rivers reported that the result was the finding of two pieces of pottery, one hard and red and the other soft and black, which was insufficient to prove anything.

In a ravine to the south-east of the Beacon Camp and a little below Clutter's Cave, against the roots of an old crab tree, lies a huge block of syenite. This stone is called the "Divination" Stone, and has been described in ancient manuscripts as the show stone, suggesting that at one time singular religious rites were performed upon it.

The exact dimensions of the stone I did not take, but simply measured the part that bore the appearance of having been hollowed out by man. The hollow portion of the stone faces south and is 4 feet wide from east to west, and $3\frac{1}{2}$ feet from north to south; the centre of the depression is 4 inches in depth.

A little beyond is a British trackway still visible in places, leading from the top of the hill, to an old spring called "Waums" Well.

A ditch extends all along the top of the Malvern Range, which is said to have been constructed by Gilbert de Clare, the (red) Earl of Gloucester, who married Joan of Acre, daughter of Edward the 1st. The Earl resided at Hanley Castle and received the rights of Malvern Chase as his wife's dower, so, wishing to separate this from the lands of the Bishop of Hereford, he constructed a ditch. It is hardly possible that a ditch alone without a fence or pallsading could keep deer and other game from straying. He swore his usual oath, "By the Splendour of God, if I catch any man trespassing upon my manor I will cut off his hands."

This ditch, which starts from the Worcestershire Beacon, is cut upon the Worcestershire side of the range, and is in some places very sharp and deep, notably on the high peak over Malvern Wells where are also too large tumuli, the centres of which are broken in and measure respectively 12 and 10 feet in diameter across the hollow (they do not appear to have been opened). The dyke may be traced on to the Winds Point (before

reaching which, not far from the pig-path, on a level side of the hill, is another tumulus), it then apparently makes use of the outer ditch of the Beacon camp past the place of assembly, and at the south-end goes off at right angles above the valley by the Thorn Tree, keeping along the top of the hills, crosses the Silurian Pass (where many old British roads or trackways may be clearly traced, the principal of which runs into the Ridgway) over the Swinyard Hill up the side of Midsummer and Hollybush Hills, through the north side of the ditch of Hollybush Camp, down the declivity on the south out of the Camp, over the Hollybush Pass, and top of Ragged Stone Hill.

This dyke or ditch must be of greater antiquity than that usually assigned to it, and I am inclined to think that it was originally formed by the Silures, or by whatever tribe held these hills as a line of defence and covered way from one end to the other; from which they could keep a command over the plains of Worcestershire and Gloucestershire. I am of opinion that it was formed subsequently to the camps, as the outer ditches on the eastern side of both have been made to do duty for a portion of it.

It is very natural to suppose that the Earl of Gloucester adopted it as his boundary, but hardly credible that he should have had it dug out for the purposes assigned.

When the Ordnance Surveyors were excavating in 1849 upon the summit of the Worcestershire Beacon, a small urn of Saxon pottery was discovered, containing charred human bones; this urn is in the possession of Mr. E. Lees, of Worcester. As another instance of Celtic occupation of these hills, I may mention that in the year 1650 a gold crown or coronet was discovered by a poor man whilst making a ditch in the parish of Colwall, which is situate at the base of the Herefordshire Beacon. It has been mentioned by Camden and others. An old MS., said to be in possession of Jesus College, Oxford, states that a coronet or bracelet of gold, set with precious stones, of the size to be drawn over the arm and sleeve, was found at Burstner's Cross. It was sold to a goldsmith in Gloucester for £37, who sold it to a jeweller in Lombard-street for £250, and he again sold the stones alone for £1,500. Thus we must imagine the gold crown was melted down.

There are many traditions of coins of remarkable value having been found, but no one can say to what period they belonged.

Before closing this paper, I may mention that having carefully weighed all the evidence, we may consider this large camp, as well as the other camps on Hollybush and Midsummer Hills, to be of late Cymric or Celtic origin, and that the latter camp is of earlier date than that on the Herefordshire Beacon, and that in

all probability they were occupied for a time by the Romano-British, as many remains of those people exist in the county, and the pottery appears to be of that period.

I hope at a future time to be able to make another section right through the ramparts of the Citadel and of the Camp with a view of clearing up more conclusively the age of the castramentation.

DISCUSSION.

Mr. VAUX remarked that he was intimately acquainted with the topography of the Malvern Hills, and could therefore bear testimony to the accuracy of the outline-plans exhibited.

General PITT RIVERS said that although he had accepted Mr. Price's invitation to join him during his examination of Herefordshire Beacon he had occupied himself entirely with the plan of the Camp, and therefore could not speak as to the position of the relics discovered; but from Mr. Price's account of the diggings, he concurred with him in thinking the results as to date doubtful, the absence of glaze on any of the pottery was certainly a circumstance to be noted in favour of a Celtic origin. But on the other hand some if not most of the pits contained objects of later date, and the examination of the rampart is scarcely sufficient to base any conclusion upon. He quite concurred with the author of the paper as to the long mounds not being barrows; he felt satisfied that if Mr. Price's explanation of them tallied with his own, they were artificial rabbit burrows, the supposed breach on the west side was clearly produced by natural causes. We had yet to determine to what extent, if at all, keeps or citadels in the interior of works were in use in pre-Roman times. Double and treble lines of defence were undoubtedly common. The scientific exploration of these camps is only commencing, and we were as yet without sufficient data for generalisation.

JUNE 22, 1880.

E. BURNETT TYLOR, Esq., F.R.S., *President, in the Chair.*

The minutes of the last meeting were read and confirmed.

The following list of presents was read, and thanks voted to the respective donors :—

FOR THE LIBRARY.

From Prof. F. V. HAYDEN.—The Great West, its Attractions and Resources.

From Signor FRANCISCO P. MORENO.—Viaje á la Patagonia Austral.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1438 and 1439.

From the SOCIETY.—Proceedings of the Royal Society, No. 204.

From S. E. M. le Président de la Commission.—Compte-rendu de la Commission Impériale Archéologique, pour l'année 1877.

From the ROYAL ACADEMY OF COPENHAGEN.—Oversigt over det Kongelige Danske Videnskabernes Selskabs, 1879, No. 3, 1880, No. 1.

From the MUSEUM.—Archivos do Museu Nacional do Rio de Janeiro, Vols. II and III, Parts 1, 2.

From the EDITOR.—“Nature,” Nos. 554, 555.

——— Revue Scientifique, Nos. 50, 51.

——— Matériaux pour l'histoire de l'homme, Tom. xi, l. 3, 4, 5.

——— Correspondenz-Blatt, No. 6.

The election of ROBERT WILLIAM FELKIN, Esq., and of D. LOGAN, Esq., Barrister-at-Law, was announced.

Mr. Wilfred Powell exhibited some Ethnological objects from New Britain and New Ireland. General Pitt Rivers, Mr. Richard B. Martin, M.P., Prof. Flower, F.R.S., Mr. Hyde Clarke, Mr. Keane, and the President took part in the discussion.

Don Francisco P. Moreno exhibited two skulls from Patagonia (Rio Negro).

Professor W. H. Flower, F.R.S., gave the substance of a paper on a Collection of Crania from the Fiji Islands.* In the discussion that ensued Dr. Allen Thomson, Prof. E. Ray Lankester, Mr. A. H. Keane, Mr. Park Harrison, and the President took part, and the author replied.

The Assistant Secretary read extracts from a paper by Mr. Peter Bemridge, on the Aborigines of Victoria.

The following papers were taken as read :—

a. “Land Tenure in Fiji.”—By the Rev. L. Fison.

b. “Welsh Customs and Legends.”—By the Rev. R. F. Kilvert.

c. “A Classification of Languages on the basis of Ethnology.”—By M. Gustav Oppert.

d. “On the Asiatic Shoreline of the Hellespont.”—By Mr. Frank Calvert.

e. “Note on a Stone Implement of a Palæolithic Type found in Algeria.”—By Sir John Lubbock.

f. “On Flint and Bronze Implements in the Nile Valley.”—By Mr. R. P. Greg.

LAND TENURE in FIJI. By the Rev. LORIMER FISON, M.A.

It would be quite possible to stir up in Fiji a controversy about Land Tenure similar to that which has raged so hotly in India.

* See pp. 153 and 174 in present volume.

An investigator who will listen to that only which the chiefs have to say about it, may easily come to the settled conviction that they, and they alone, are the owners of the land, and indeed of everything else; while another, who takes the statement of the commoners* only, may as easily satisfy himself beyond all doubt that it is they who are the real proprietors of the soil. Both of these inquirers would be right to a certain extent, and both of them would also be wrong. The statement of the commoners I believe to represent ancient custom. That of the chiefs sets forth the extent to which they have been able to override that custom; and Her Majesty's Government has now to decide the question between these two parties. It will in all probability be impossible to satisfy both; but each of them has a right to a fair hearing, and there can be no undue leaning either to one side or to the other without injustice.

The question is between ancient custom on the one hand, and what the Fijian calls *Valavala vakaturanga*† (chief-like doings) on the other.

This is equivalent to saying that the question is between Law and Despotism, with the reservation that it has yet to be decided how far the long prevalence of *Valavala vakaturanga* may have established a custom in their favour.

It is not easy for civilized men to feel the power which ancient custom has upon tribes such as these. We are governed by laws which our legislators make for us, but with the savage everything is regulated by custom, and custom is law. Savages have no other law, but it seems to me to be unphilosophical to assert that they have therefore no law at all. For law is the rule which men are bound to obey because it was made by qualified authority. And the savage looks upon that authority as vested in the far-away ancestors of his tribe. The customs founded by them are the laws which he is bound to obey. An offence against them is more than lawless; it is impious.

The question between ancient custom and the power of the chiefs—sufficiently difficult in itself—is further complicated by the fact that neither one nor the other is uniform throughout the group. Custom differs very widely. Succession, for instance, is agnatic in some places, and uterine in others; and they who are acquainted with the subject need not be told how great an effect this fact alone must have upon the customs of the people. The chiefs, too, in some places are very powerful,

* Whenever the word "commoners" occurs in this Article, the class of men known as the *TAKERI* is meant thereby.

† "Masterful doings" is a fair translation of *Valavala vakaturanga* when the expression is used in this sense.

while in others they have but little authority. Hence no description of what is the usage in any one place can be taken as of universal application. We may, however, take a certain neighbourhood, and analyse the constitution of the various communities which there present themselves; for it is necessary to understand this in order to get at the basis of Land Tenure. For this purpose I propose to take Bau and its immediate dependencies. This, at all events, will not be unfair to the chiefs' side of the question; for it is in this neighbourhood that the power of the chiefs has attained its highest pitch.

Here we find a number of koro (villages) all of which stand in a certain definite relation to the koro turanga (chief koro), which is Bau itself. Examining these koro, we find that their relation towards the koro turanga is not the same in every case. Moreover, some of them are inhabited by taukei (landowners) while the people of others appear to have no land of their own. We have therefore to ascertain whose is the land which these people are cultivating, what causes them to differ from the land-owning tribes, and what again causes these to differ one from another.

Passing by the koro turanga for the present, let us examine a village inhabited by one of the land-owning tribes, and let us suppose our examination to have been conducted in the heathen days, in order that we may get at the unadulterated customs of the people. The koro is surrounded by moat and mound and war-fence, in good or bad repair according as there is war or peace in the land. It is divided into "quarters," of which, however, there may be more or fewer than four.* Each of these quarters belongs to a section of the community called a mataqali,† a word which fortunately tells its own history.

Literally, "mata" means "eye," or "face." Hence Matanisinga, the Eye of Day, is the Sun. The secondary meaning of the word seems to be an *eyeful*, so to speak, *e.g.*, "a mata i valu" = a band of warriors, "a mata veitathini" = a band of brothers.

Qalia is "to twist together." If you take two pieces of twine, and "lay them up," as sailors say, by rolling them together on your knee under the palm of your hand, you "qalia" them. A still better illustration is afforded by the use of the word as it is applied to cocoa-nuts. The nuts are first tied in pairs by

* In some parts of Fiji the koro is divided into two sections, separated by a ditch; and the head chief is chosen from each section in its turn. These sections are subdivided into "quarters."

† The Fijian *q* is pronounced like *ny* in "younger," sometimes like *nk*. The vowels have their proper sounds, and every vowel is always sounded, even in the so-called diphthongs. The accent is nearly always on the penultimate. These directions will enable the reader to pronounce with tolerable accuracy every Fijian word used in this article.

raising a strip of the husk of each nut, and then knotting the strips together, but not so as to bring the nuts into close contact. The pairs are then laid across one another, and the connecting cords are twisted together. It is this twisting that is denoted by the word "qalia." It is significant that ten nuts thus twisted together are called a "qali," while a bundle of ten "qali" is called a "koro" (village). The word "mataqali" therefore means a number of men who are "twisted together." The twist is a common descent.

A "mataqali" is composed of the descendants of a mataveitathini, or band of brothers, from each of whom is descended a minor division called a yavusa, and each yavusa may be again sub-divided into a number of vuvale, consisting of brothers with their families, who inhabit either the same house, or adjoining houses. That is to say, a number of vuvale make up a yavusa, a number of yavusa make up a mataqali, and a number of mataqali make up a koro. The people of a koro are theoretically of common descent, though they are not always actually so.

If, therefore, the koro be compared to a cable, the mataqali are the ropes which are twisted together to form it; the yavusa are the strands of the rope; the vuvale are the yarns of the strand; and the individuals are the fibres of the yarn.

If we examine a rope we shall see here and there fibres of a different colour, and even of a different material, from the rest, which appear to have got into the rope by accident. Thus there are certain individuals who are incorporated with a mataqali, but are not full-born members of it. And in addition to these, there are a number of people attached to it, who are not "twisted in" with the mataqali at all, but who yet belong to it. Our simile fails us here, unless we take these unfortunates to be represented by the frayed out fibres which stand forth as if they belonged to neither rope nor strand nor yarn, but are nevertheless held hard and fast. Their status will be investigated by-and-by.

These divisions are not unchangeable. They run into one another, and it is not always easy at first sight to distinguish one from the other. From an original vuvale several yavusa may be formed; and each yavusa may branch out into smaller yavusa, and grow into a mataqali. This process is clearly seen in the register of the Israelite families given in the 26th chapter of Numbers. In the first place, the sons of Jacob are the vuvale or mataveitathini—band of brothers—each of whom becomes the head of the household, and his descendants are his yavusa. Among the veitathini is Joseph, who branches out into the two yavusa, Manasseh and Ephraim. Each of these again becomes

by expansion a tribe or mataqali. Thus "Of the sons of Manasseh: of Machir, the family of the Machirites: and Machir begat Gilead: of Gilead come the family of the Gileadites." The sons of Gilead who founded yavusa were no fewer than six, not counting Zelophehad, from whose daughters seem to have sprung all the Manasseh yavusa "on this side of Jordan."

In Fiji many of the original yavusa have grown into mataqali, some of which are widely scattered among the islands. Their common origin is known by the fact of their having the same god, who is called the Kalou Vu (God-ancestor). Thus, if the Israelites had been Fijians, Joseph would have been the Kalou Vu of all the Ephraimite, as well as the Manasseh yavusa on both sides of Jordan. Beyond him would be Jacob, as the Kalou Vu of all the tribes of Israel. And beyond him again—unless he had utterly faded away from the tradition of the elders—would be Abraham, as the Kalou Vu, not of the Israelites only, but of the Edomites also, and other nations. His shrine would probably be a snake, a rat, a shark, or some other object: generally, though not necessarily, an animal; a reminiscence of the far more ancient totem, which, though it is older than the oldest Kalou Vu, still survives, as I verily believe, in the crests of our armorial bearings.

LAND.

The koro* has its own lands, distinct from those of other koro. These are of three kinds: 1. The Yavu, or Town-lot; 2. The Qele, or Arable Land; and, 3. The Veikau, or Forest.

1. The YAVU.—Each mataqali has its own yavu, which is the "quarter" of the town belonging to it. These yavu are subdivided into smaller yavu, apportioned to the yavusa, and these again into lots smaller still, each family or household having its own. The household, it must be observed, may be composed of several families, the heads of which are brothers. It is in fact the vuvale, and is generally presided over by the head of the eldest branch. This smaller yavu is the precinct, and may be surrounded by a fence at the will of its owners.

The yavu adjoin one another; but you must not build quite up to the edge of your own yavu, nor may your neighbour build up to the boundary of his. You and he must so arrange your houses as to leave a pathway between them. And when you cut down the grass and weeds in that pathway you must

* The koro may have several affiliated koro, inhabited by men of the same stock. These we may call a *community*. I continue to speak of one koro only for the sake of convenience.

be careful to keep within your own boundary, unless your neighbour be helping in the work. To cut down the grass on his side without his permission would be an assertion of ownership on your part. Great care is taken by the people to guard against encroachment here. The building of a new house is jealously watched by the neighbouring owners, and frequent quarrels arise. When such a quarrel culminates in a fight, which is no uncommon occurrence, the chief has no power—or, at least, no right—to interfere as a partisan. He may stop the fight, but he may not strike in on either side. “What are those people fighting about?” “Their yavu, Sir.” “Oh, very well.” That is the usual formula.

The yavu is under the dominion of its owners, and the house standing upon it is a sanctuary, which not even the greatest chief has a right to violate. No man outside of your own kindred can enter your precinct, and cross your threshold against your will. If a great chief wants to kill a man who is within your house, you may at least delay the death-stroke. Clapping your hands crosswise, you say respectfully, “Let him not be killed, Sir. He is in my house.” The chief may disregard your right; but his so doing would be considered Valavala vakaturanga, and the “chief-like doings” here would be equivalent to “masterful wrong.”

In fights among the townsfolk you may take refuge within your house; and how hot soever the fight may be, your adversary cannot follow you thither.* Anything you may have growing within your precinct—kava, bananas, breadfruit, or what not—the chief has no right† to take from you. If he want them, he must ask you for them. This, at least, is the taukei's statement of ancient custom.

I have gone into this matter at length, because a great deal depends upon it. There seems to be a close connection between the town-lot and the arable land, and the ownership of one appears to go far towards establishing that of the other. Hence the people are extremely jealous of encroachment upon their yavu. If they be driven away by war, they will keep up the memory of the arrangement of the yavu with the greatest care; and whenever they are able to return, each mataqali builds upon its old “foundation.”

2. The QELE.—Beyond the koro is the Qele, or Arable Land,

* If, however, the town be taken in war, the house is no longer a sanctuary. The ancestral gods have shown themselves to be weaker than those of the invaders; and when they can no longer protect their own, *væ victis!*

† I do not say that he has not the *power*. I am stating ancient custom as the commoners state it. It is this custom which establishes right, for custom is law. What the chief does because he has the power to do it is quite another thing.

whose boundaries are clearly ascertained, and well known to all. In some places it is divided into lots, and sub-divided into smaller lots, each having its owner or owners. Elsewhere it is not so divided, and all the joint owners appear to use any piece that may be convenient, provided always that they do not go beyond the lands belonging to their koro.

3. The VEIKAU.—Beyond the Qele again is the Veikau, or Forest. The forest lands are not sub-divided like the qele. They are common to all the mataqali of the koro, and of the affiliated koro which make up the community. Its members have the joint right of felling timber for building and other purposes. But one community may not trespass upon the Veikau of another, and valuable presents are made in order to gain permission to fell timber on the lands of others.

Hence it appears that the town-lots and the arable lands are divided among the taukei (landowners), while the forest lands are held in common by them. Arable land also, which is not in actual use, is in some places common to a certain extent. A taukei of any mataqali in the community may cut grass or reeds from it; but he may not turn up the sod on any plot other than his own. For instance, he may not dig up a wild yam which he may find growing there. He may take from the land that which grows wild* out of it, but not that which is growing in it.

THE TAUKEI.

From what has been already stated it seems clear that the land is vested in—or, at any rate, is held by—certain joint tribal owners who have a common descent. These are called the Taukei ni vanua, or owners of the land, and we have now to ascertain who they are.

Not all the people are landowners. There may be attached to a mataqali a number of men, who, while they belong to it, are not full members of it. These may either be the descendants of Kai tani (people of another community, strangers, foreigners) or men who were not "born," as the Germans have it. These two classes must be clearly distinguished one from the other.

The Kai tani may have been in the first place fugitives from other tribes, or war captives, or other commoners who have become attached to a mataqali, but were not born into it. In some places these foreigners never become assimilated with the tribe among whom they live. The descendants of a stranger are strangers to all generations. Many of the tribes, however,

* Fruit trees in the veikau are not considered to be of wild growth.

seem to have the power of assimilating* these foreign particles to a certain extent. A stranger may prove himself an exceptionally useful man in the arts of either peace or war. Wishing to attach him to yourself, you give him one of your daughters, and with her a piece of your land, which is called the Thovithovi ni Lou, or Vetiveti ni Lou.† He himself can never be ought but a stranger, but his son is Vasu‡ to your son, and inherits the Vetiveti in Lou if he remain in your koro. To the extent of that piece of land he is numbered among the taukei of your mataqali, but he is called a Taukei Vulangi (stranger taukei) and in some places this is the designation of his descendants for ever, or at least until their foreign extraction dies out of remembrance. If, however, they are useful men, and conduct themselves properly, they will be treated as members of the tribe: but if any one of them make himself offensive he will be reminded of his origin, and cautioned that he has no right to assert himself. A good example of this is afforded by the present Matanivanua Levu (Chief Herald, literally "Eye of the Hand") of Rewa, who is the Vasu of a Rewa matanivanua, and was brought up by his uncle. He so conducted himself as to win the respect of the tribe; and when his uncle died without male issue, he was elected by common consent to the office which he now holds. His son, however, does not tread in his father's footsteps, and was put to open shame not long ago by a public reproof. "How is it that you are impudent here? Hold your peace, for your grandfather was a stranger."

The vasu§ has certain privileges with regard to his uncle, and can make free with his property to an extent which would be surprising if we did not know the vasu-right to be a survival of inheritance through the mother under which the sister's son becomes the heir, to the exclusion of the son. It is even asserted by a person well versed in native matters that the vasu can take his uncle's land. But this is an evident mistake, arising probably from that gentleman's observation of

* Adoption is practised in Fiji, but only, I think, by a few tribes who have learned it from the Tongans. Cases have been brought under my notice as instances of adoption, but on inquiry I have found that the persons said to be adopted were looked upon by the people themselves as Kai tani who had become connected, but not fully incorporated, with the tribe. The custom of full adoption is very common in the Friendly Islands, and other neighbouring groups.

† "The Plucking of the Lou," a tree whose leaves are used to line food baskets.

‡ Vasu—elsewhere vatuvu, or mbaturu—is a title of office, not a term of relationship. The latter is rungo—elsewhere runga, quva, suquva, or ū.

§ The ordinary vasu are here spoken of. The vasu levu (great vasu) has extraordinary privileges. He is vasu to the whole community.

the custom in Vanua Levu, where he has chiefly resided during his long stay in Fiji. In many parts of that island succession is uterine, not agnatic, and the vasu, or sister's son, takes the land by natural inheritance, not by vasu-right. In the neighbourhood of Bau, where succession is agnatic, the vasu has no land among his mother's tribe, excepting the portion which is given as her dower; and he has this only when he takes up his residence with her tribe. As a general rule this land is given only when the marriage is between two neighbouring mataqali whose lands adjoin; and these are the marriages preferred by the people, for they cause no trouble about land. The Vetiveti-ni Lou are simply exchanged between the mataqali as they intermarry, and the mark remains undiminished. If the vasu choose to live in his mother's koro, he will be allowed her Vetiveti-ni Lou, but his position will depend upon his good behaviour.

Hence it is evident that, in order to be a full-born taukei, or landowner, it is necessary that descent should be traced through an uninterrupted line of full-born males—to which statement we may now add the words “and of females also who come to their husbands in the proper manner.”

A base-born child is not a member of the clan, though he belongs to it; and even in cases of elopement (which frequently occur) though the offence may be condoned, and the parties recognised as man and wife, if the son of such a marriage assert himself too prominently, he will be rebuked by the elders—“You there! Let not your voice be loud. As for your mother we know nothing about her. We did not eat her marriage feast, nor did we make presents to her kinsfolk for her.” He would not be looked upon as base-born; and yet there was a fault in his birth which should suffice to keep him humble in the presence of full-born men.

THE KAISI.

The resources of the language seem to have been ransacked for terms of contempt to pour upon base-born men. They are luve ni sala (children of the path); luve ni mbutako (children of theft); ngone sa senga na tamandra (children without a father.*) These terms are tolerably clean; but others, such as Kaisi, Kaimoro, Luve ni Qala, and the like, are simply untranslatable because of their filthiness. It is sufficient to say that each one of them is a denial of true generation.

The great chiefs speak even of the commoners as their kaisi; but this, I am persuaded, is an unwarrantable, though a very

* Not “fatherless children,” but “children who never had a father.”

common, use of the term. The chiefs have made so wide an application of the word that it has forgotten its real meaning and needs to be reminded of it. It is used by the chiefs to designate all low-born men; but, strictly speaking, it can be applied only to those who are base-born, and to their descendants also, for the children of a kaisi are kaisi for ever. These are they who belong to the mataqali but are not of it. They are tamata tawavakayalo (men without souls.)* They have no ancestors, and therefore no gods save such as they may have made for themselves; and they have therefore no portion either in this life, or in that which is to come.

SUBJECT MATANITŪ.

Keeping in mind the distinction between men who are "born" and those who are not, we shall be able to understand the relation in which the various koro connected with Bau stand to it. I have already explained that there may be in a community several koro inhabited by a people of the same stock, and together composing a community. One of these is the koro levu (great town) or koro turanga† (chief town) of that community, and is probably the "mother-village" of which the others are offshoots. There may be in addition one or more koro belonging to the community and yet not of it. All these together may, or may not, form a Matanitū‡ a word hard to be translated, and which is generally rendered by our word "kingdom" for want of a better. Several of these village clusters subject to Bau are matanitū.

There is no difficulty about these. They are matanitū which have either been conquered by Bau, or have given themselves to it. They owe some sort of allegiance to Bau, it being distinctly understood that the debt is binding upon them only as long as Bau is strong enough to enforce payment of it. They render military service, and make offerings of food and property in time of peace. This, however, is tribute, and can in no sense be called rent. They can refuse to pay it whenever they please to run the risk of refusal, and they have frequently been pleased so to do when political disturbances gave them a chance. They are not tenants of Bau: their lands are their own.

* So also the Tongans say that their mea vale (foolish things) have no souls. They are the descendants of worms.

† Bau is the koro turanga levu (great chief town) of all these village clusters.

‡ Tu = to stand erect. The word Tui, which we render "King," is simply Tu with the preposition "of." Tui Bau = the Tu of Bau. It is also found in Turanga = chief, Ranga = the Maori Rangatira, elsewhere Ra'atira = the Fijian taukei (landowner).

MBATI.

Other koro again are mbati to Bau. Mbati means teeth, and is an expressive term when thus applied. The mbati are warriors, freemen living on their own lands, and are treated with great consideration. Feasts are made for them, and they are paid for their services in war. When they are present at a Bau feast, and a pig is cut up, the head is given to them. If they consider themselves neglected in the portioning of the food, they may kill one of the sharers of the feast in the next fight. On their part, having eaten the feasts made for them by the koro turanga, they fight on its side in war if they do not consider it preferable to fight on the other side, as they frequently do. They are, in fact, mercenaries, rather than subjects, of the ruling tribe, and they can transfer their services to the enemy if they choose. The Bau chiefs, on the other hand, aver that the mbati are their own men, who are bound to their service. But history is certainly against them here. Dugald Dalgetty himself was not more free to change sides than are the mbati, though of course they have to count the cost. They cannot *use* their freedom as readily as he could use his; for they are settled agricultural landowning tribes, whereas Gustavus could carry that unencumbered rover and all his belongings beyond the reach of vengeance.

QALI LEWE NI KURO.

On the mainland of Navitilevu behind Bau, and elsewhere, there are certain villages whose people are called the qali lewe ni kuro (contents of the pot qali). These are of the lowest rank, or rather of no rank at all. They are kaisi, the descendants of "children without a father." They are vakatau ni were (husbandmen) but they are not yeomen like the taukei. Neither the lands they cultivate, nor the town lots on which they dwell, are their own. They are not even tenants. They are hereditary bondsmen, *adscripti glebæ*, whose business it is to raise food for their masters. Their lords may oppress them, and they have no redress. In times of peace they must work for them, and in war time they must fight for them to the death. They cannot pay off old scores by turning to the enemy like the mbati.

The position of this qali* seems to account for the contempt

* Qali here is the same word as that which is found in "mataqali," but the qali to Bau and the Bau mataqali are two very different things. The "twist" is altogether different. All the component parts of the Bau matanitū are sometimes called its Qali—the Qali vaka Bau. The subject matanitū are called the

in which the husbandmen are held elsewhere. Agriculture itself is by no means thought to be dishonourable. On the contrary, the highest chiefs are often diligent planters, and Thakombau himself sets an excellent example to his people in this respect. The husbandmen are despised, not because they are husbandmen, but because they are kaisi, people without a father.

EMIGRANTS.

In addition to the koro already mentioned, there are others inhabited by tribes who have either migrated from their own lands owing to disagreement with their kinsfolk, or have been driven thence by war. These emigrants beg land from a taukei tribe, and settle down upon it. They are not landowners where they are now living, but it does not follow that they are kaisi.* If they were taukei in their own land they cannot be placed on the level of the people without a father. You cannot degrade a taukei into a kaisi. You may drive him from his lands, but you cannot rob him of his ancestors. And though he be an exile, a stranger in a strange land, cultivating the soil which is not his own, and paying rent of produce and service to a tribe that took none from his fathers, he is nevertheless far above the level of a serf. Tribes such as these are tenants at will, and the land may be taken from them whenever it may be required. How long soever their occupation may continue, it does not establish a title. The descendants of the taukei can always resume the lands, upon giving formal notice, and presenting some property or other, which is called "the falling back of the soil."

CONQUEST. SOROQUELE.

It is a disputed question as to how far conquest affects the ownership of land in Fiji. It is certain that in former days, when population seems to have been on the increase—or perhaps we ought rather to say when the tide of immigration was still flowing—tribes were dispossessed of their lands by other tribes who took them into their occupation, and are the taukei of the

Qali turanga (Qali of chiefs), the Mbatī are called Qali tangane (Qali of men), while the husbandmen are called the Qali lewe ni kuro (Contents of the Pot Qali). These terms, however, would, I think, be used only by the Bauans themselves, or by strangers. Call a Mbatī a Qali, and he will very likely answer by a club-stroke. The term Qali, in the sense of one tribe being qali to another tribe, seems to be applicable, strictly speaking, to the husbandmen alone. They are also called Qali kaisi, Qali vakatha = "of a bad twist."

* The emigrants have been spoken of as Qali kai tani (Qali of foreigners), but this, I think, is a mistake. The Qali kai tani are men who were somebody else's qali, but of whom you have got possession. They are yours, for you hold them, but they belonged to some other tribe in the olden times.

present day. But it is long since the population of the country ceased to advance, and the question now is: "Does conquest by a tribe which does not occupy the land transfer the ownership?" This is a question on both sides of which there is much to be said. A vanquished tribe in its extremity sometimes presents a basket of earth to its conquerors, suing for peace; and this ceremony, which is called the Soroqe,* is held by some authorities to be a formal transference of the ownership of the soil. But we find tribes who are known to have made this soro, and others who were utterly vanquished and punished by long banishment from their koro, now in undisputed possession of their lands as the taukei. They have given evidence before the Lands Commissioners as the owners of land sold by them since their return to their ancient sites. It must be admitted that the form of words used in the soroqe expresses the most complete abandonment of everything to the conquerors; but the Fijian uses extravagant expressions on nearly all occasions of ceremony, and their evidence is of little weight.

The question seems to be a vexed one elsewhere also. Thus I am told that the New Zealand Government paid three times over for a certain piece of land—once to the occupiers from whom it was bought; again to a tribe who claimed the title because their fathers were said to have conquered the inhabitants who knows how many generations ago; and finally to a third party who claimed, because their fathers had been there to be conquered.

After listening to a great deal of conflicting evidence on the question from the natives themselves, I am inclined to think that the soroqe is a surrender of the fruits of the soil, but not of the soil itself. The land might be withheld for a time as a punishment, but it was eventually restored. Be this as it may, I am fully convinced that conquest without the soroqe does not affect the title of land.† It is certain that, though the taukei may be driven from their lands by a stronger tribe, they do not acknowledge the most crushing defeat as an extinction of their title. In fact they consider their title to be inextinguishable as long as they themselves are not extinguished. It may be held in abeyance, but it cannot be destroyed.

The foregoing is a necessarily imperfect statement of Fijian

* Soro = offering of atonement. Qele = earth.

† Chiefs have sold the lands of conquered tribes to the white men, but they knew that they were exposing the buyers to a serious risk. "Why did you sell that land to those men?" I asked on one occasion. "You know the taukei are in the hills, and that there will be mischief." "True," said the old chief placidly, "but the white men have many guns. They are a war-fence to my back."

custom as to land tenure. Not only is it incomplete even with regard to the particular neighbourhood specified, but it would require endless modifications to make it fit in with the usage in other parts of the group, for there is no such thing as uniformity of custom in Fiji. I think, however, that it may be taken as fairly representing the broad principles of land tenure in Fiji, *as they are held by the taukei themselves*. He who makes his inquiries from the chiefs alone may come to a very different conclusion.

I have very little doubt that the taukei's statement of the case is a correct representation of ancient custom. But there has long been in Fiji a power which has been able to override that custom, and this is the power of the chiefs. Hence the actual usage is that of ancient custom modified by what we may call *tyranny* without insisting on the word's being understood in its evil sense. We have, therefore, to inquire how far this modification affects land tenure.

The power of the chiefs has been so long exercised as to have established for itself a sort of "prescriptive right." It has been in force for so many generations that it may be said to have grown into a custom. Nor is this denied by the commoners. They acknowledge that they owe service to their chiefs, and they render it willingly. *But they most certainly deny that they owe it either as tenants or as serfs.*

The chief is their lord, but he is not their landlord. He is but one of the joint tribal owners together with themselves. As a member of a landowning tribe he has his own share of the tribal land; and, as far as rightful ownership of the soil is concerned, he has not one acre more. And farther, his share is generally less than that of the ordinary taukei, for this reason among others—the commoners usually marry within the koro,* or at least within the bounds of the affiliated koro, and their wives bring land with them. The higher chiefs, on the contrary, seek their wives from other, often from distant tribes, and therefore do not receive with them any addition to their own share of land. There are even chiefs who have no land at all of their own among the mataqali over whom they rule.

CHIEFS.

It may not unreasonably be asked, "If, then, the chief be only one among a number of joint tribal landowners, how comes it

* Sometimes they marry within their own mataqali, though all the mataqali are theoretically brothers and sisters, according to the Fijian system of kinship, because they are descended from brothers. The people say that these marriages are lawful, because "sa yawa na nondra veinganeni" (their fraternity is far away).

that he is so high in rank above the commoners? How, indeed, can there be any difference of rank at all among full-born men?" This question I will now endeavour to answer.

It may be stated as a general rule that as long as descent is reckoned entirely through females, all the members of a clan enter the world on the same level; and that, whatever distinctions there may be, there are none of birth. Hence among the tribes who have that line of descent, and *who have not been brought into contact with tribes having agnatic descent** so as to be influenced by them, we find no such thing as hereditary chieftainship. Many such tribes have no chiefs at all, though they may have men who are leaders in war-time, or of considerable influence owing to their position in the remarkable "clubs" and secret societies† which are of wide prevalence. Other tribes have elective chiefs, but the office is not hereditary in any one line.

But when descent comes to be reckoned through males—and it is sure to come sooner or later when nomad hunters settle down to agriculture—then birthright and polygamy combined produce marked distinctions of rank, and these distinctions become hereditary.

An inquiry extending over fifteen years among the Fijian and many other tribes has convinced me that hereditary ruling chiefs are in the first place nothing more than heads of families. But when descent is through males, one family takes precedence of another by birthright, and its head is therefore exalted above his fellows. Thus, to go back to the original Mataveitathini (Band of Brothers) from whom the various yavusa of a mataqali are descended, the elder brother takes precedence of the younger, and the yavusa, of which he is the

* This is an important qualification of the statement. In Fiji there are tribes in a state of transition from uterine succession to agnatic under the influence of that contact, and distinctions of rank are found among them. There is one community which begs its chief from another, because it has not yet learned how to manufacture a head chief of its own.

† The Rev. R. H. Codrington, M.A., of the Melanesian Mission, first called my attention to these societies. Some of them, he says, are secret, and some are not. The Suqe, or Club, is composed of ascending grades, and promotion is bought with "pigs and money," the money being a sort of shell currency.

The headmen of the highest grade in the Suqe have great influence; but they are not chiefs, nor do they transmit their position by inheritance. Mr. Codrington states positively that there are no chiefs among the Banks' Islanders, and he is of opinion that there are none in the neighbouring groups, where also descent is reckoned through females, "excepting where the Polynesian element is strong." Of the term "chief" he writes—"Travellers and others, who expect to find chiefs everywhere, use the word, but improperly. I have seen in print, as the personal name of a so-called chief, the very word which denoted his grade in the society."

I myself have found what seem to be traces of similar societies among the Australian aborigines.

ancestor, takes precedence of the other yavusa. And since the descendants of the elder brother are the elder brothers for ever,* it is no wonder that so much importance should be attached to the birthright. No wonder that Esau was despised for selling his at so cheap a rate. No wonder that Joseph was "displeased" when he saw Jacob's right hand placed on Ephraim's head instead of on that of Manasseh.

But this is not all, nor could it of itself account for the distinctions of rank which are found in Fiji. Birthright and polygamy combined are necessary to account for them. Polygamy acts as follows:—

Every chief of high rank has a certain wife, or certain wives, who are marama (high-born women—of "good families"). These are called Watina Mbau† and his children by them are chiefs in their own right. But though all these wives are marama, one of them may be of a "better family" than the others, and her child is consequently of higher rank than are their children, for rank is derived from the mother as well as from the father. Hence there may be difference of rank among high-born chiefs who are children of the same father by the watina mbau. A man may even be of higher rank than his own father, if his mother be of higher rank than his paternal grandmother.

And farther, in addition to his marama wives, a great chief may have any number of women who are recognised as his wives to the extent that they belong to him alone. They are called Watina Lalai (his little wives) and their children are called the Kaso.‡

The kaso are veitathini (literally "brothered together") with the sons of the marama, but they are very far from being of equal rank with them. It takes nobility on both sides of the house to make a full-blooded chief; and, while a kaso is a chief by the father's side, he is a commoner by the mother's. And, since the chief's lands all descend to his sons by the marama,§

* This rule, though common, is not invariable.

† Watina mbau = his wives. The word mbau throws a strong emphasis on its antecedent.

‡ This term is very significant. The kaso are the spars which bind the body of a canoe to its outrigger. The chiefs being represented by the hull, and the commoners by the outrigger, the kaso are between the two, tied to both and yet belonging to neither. There is a superior class of the kaso, who are called the kaso vesi. It is impossible to explain all these distinctions within the compass of a single paper.

§ Sarah was watina mbau to Abraham, and Keturah was watina lailai—(lailai is the singular, lalai the plural)—hence Isaac was his heir. Midian and the rest were kaso. "And Abraham gave all that he had unto Isaac" (Genesis xxv. 5). To the kaso "he gave gifts, and sent them away" Ishmael was not reckoned among the kaso, because Sarai gave his mother to Abraham in her own stead, whereas Abraham took Keturah. Both Isaac and Ishmael are called

the kaso are landless. At least they are dependent on their high-born brother for such portion as he may be pleased to give them. He gives them yavu for their houses, and land for their plantations. In return they have to do him service. They are his "tail," or following, and must do his bidding. The descendants of a kaso who marries into a family of commoners are not exactly men of rank, and yet they are respected. Their descent from the great chief is borne in mind.

Starting then at the kaisi or serfs, who are, strictly speaking, those only who are "without a father," we have an ascending series as follows:—

1. Men who are not "born" at all.
2. Men who are born, but not full-born, *e.g.*, the descendants of a "stranger" who married and settled among the tribe.
3. Men who are full-born, but not well-born, viz., the ordinary commoners.
4. Men who are well-born, but not high-born—the kaso and their descendants.
5. Chiefs who are high-born, but who do not attain to the highest rank.
6. And, finally, chiefs who are so high-born as to be god-born,* the pure blooded eldest of the eldest of the eldest† up to the Kalou Vu who stands at the head of the line.

But though the high born chiefs are thus exalted far above the commoners, land tenure remains untouched. How much soever of the fruits of the soil the chief may take by right of either birth or power, he is no more than one among a number of joint tribal owners, as far as the rightful ownership of the soil is concerned.

"the sons of Abraham" (1 Chron. i. 28) whereas the kaso are called "the sons of Keturah."

For a like reason the sons of the handmaidens of Leah and Rachel are numbered among the sons of Jacob.

* The Rev. J. E. Moulton of the Wesleyan Mission in Tonga, wrote to me as follows concerning the Tamahā, a title which is usually borne by one female of the very highest rank, who is chosen from among those of a certain royal lineage.—

"I believe the derivation of Tamaha to be Tama=child, and Ha=apparent, somewhat as clarus, or clarissimus, means illustrious. The son of the Tamaha is called the Tama-tauhala=the very Tiptop, the end and consummation of all things, towards whom all ranks and titles converge. And, if the Tama-tauhala have a son, he is no mortal. He is *The Eiki*=the god himself—literally *The Lord par excellence, the Baal of the Baalim.*"

† It is not of necessity, however, the eldest representative of the eldest branch who inherits the office of head chief or ruler, nor does the office necessarily descend from father to son. Qualification for the office is hereditary, but the office itself is elective among the qualified persons.

The theory* of the old government under "Cakobau Rex" was that "the lands of Fiji are vested in the ruling chiefs, and are occupied by their subordinate chiefs (or vassals) and people in consideration for past, present, and future services." It was further stated that the ruling chief "has the right, and also the power, to remove at pleasure any sub-chiefs or people from the lands they occupy," all this being "under a feudal system that has existed from time immemorial."

This theory was accepted by Sir Hercules Robinson, for he held that the land title as well as the sovereignty of the group had been transferred to Her Majesty by the chiefs, and that the people were only entitled to hold land sufficient for their maintenance. It seems to be accepted by Sir Arthur Gordon also, for sales of land have been made under his direction as if the Crown were the proprietor, and in his public speeches made during his visit to England he invited capitalists to buy Fijian lands from the Crown.

I am nevertheless fully persuaded that the theory is founded on a mistake, and that if we approach the question of land tenure in Fiji with ideas based upon the feudal system we shall never arrive at right conclusions concerning it. The Fijian was on his way to the feudal system, but he was a long way from reaching it. The lands were not vested in any chief to the exclusion of the commoners, and the service rendered to the chief was not rent for land held by his tenants. In the case of his own tribesmen it was theoretically a freewill offering made to the head of the house, the earthly representative of the ancestral gods from whom both givers and receiver claimed a common descent. In the case of the subject *matanitū* it was tribute. In the case of the "stranger" tribes, whom I have called the emigrants, it was doubtless rent, but the rent payers were not the tenants of the chief alone.† They were the tenants of all the landowners, including the chief himself. In the case of the *Qali lewe ni kuro* it was neither rent nor tribute. It was the produce of what may be called the "tribal farm" of which they were the slave cultivators. But they were

* See a Memorandum on the Ownership of Land in Fiji, by the Hon. J. B. Thurston, in the Report of Commodore Goodenough and Mr. Consul Layard on the Offer of the Cession of the Fiji Islands. Presented to both Houses of Parliament, July, 1874.

† Mr. Thurston quotes a speech made at a presentation of property as a proof that the lands belong to the chief alone. But, as I have already stated, these speeches have very little weight as evidence on such a matter. Fijians use the most extravagant expressions on occasions of ceremony. I myself once heard a chief deliver himself of the following graceful hyperbole: "We cannot express our thankfulness. Our words are too short for the length of our joy. O that we were dogs! for then would our gladness be seen in the wagging of our tails."

qali to the landowning tribe, not to the chief alone. The qali vaka Bau is qali to Bau, not to Cakobau.

As to the chief having the right and also the power to remove *at pleasure* any sub-chiefs and people from the lands they occupy, he has certainly no such right, and very few ruling chiefs have ever had any such power.

If, however, it be laid down as a first principle for the guidance of Her Majesty's Government that the chiefs have a right to do all they have done, because they had the power to do it, then there is nothing more to be said. The question is finally settled; and we may come at once to the conclusion that the commoners have neither land-right, nor any other right, because a drunken chief like Tui Cakau was powerful enough to sell whole islands and districts to the white men, and to compel his people elsewhere to make room for the wretched inhabitants whom he removed from their ancient sites. His own countrymen—even the men of his own order—cried shame upon him for doing it.

There is another side to the question, and I cannot state it better than in the words* of a Fijian taukei, which he wrote to Sir Arthur Gordon himself about a sale of land by a chief, which he considered to be scandalously unjust:—

“I, Sir, am a Fijian, and am well acquainted with the tenure of land in Fiji (na kena i lakolako ni qele e Viti). The land belongs to us the commoners (na tamata lalai, literally ‘the little men’). Its division among us is not a thing of yesterday. It is from the old, old times. The land, Sir, of my grandfather, and of my ancestors, is mine. It belongs to me, and to my kinsmen with me. It is ours, and ours alone, it cannot be turned away from us.

“That which our chiefs are doing nowadays is not just. They know the Fijian customs, and yet they sell the land without the knowledge of its owners. This, Sir, is a very great injustice. There are certain things for which our lands can be seized (e vakavuna na ka me tauri kina na naitou vanua). If we offend, as by laying hold upon one of our chief's little wives—the common ones, Sir, who are his house servants (a nona vanda saka ga), it rests with him to decide upon our punishment, whether it be that we are to make feasts for him, or whether he will take our land. And if he takes our land from us, he does but hold it in his hand; it does not become

* I cannot answer for the strict verbal accuracy of my version. The taukei repeated to me the substance of his letter as nearly as he could remember it. He is a remarkably intelligent man, and I have no doubt that his memory served him well. I may add, in order to prevent a possible misconception, that he wrote his letter of his own accord, and at least twelvemonths before I knew anything about it.

his absolute property (e senga ni nona me nona ndina sara). Thus, if my son were to offend in that way, and the chief were to take my land, I should wait until the heat of his anger were overpast. Then I should take him a whale's tooth, or a spear to be my soro (offering of atonement), and to be the falling back to me of my land. And the chief would take my soro, and say 'It is well. That day is over and gone.' And so my land would come back to me again."

This is something very different from "the right and the power to remove *at pleasure* any sub-chiefs and people from the lands they occupy."* It is a judicial act, for which there must be just cause; and, though it withholds the land from the taukei for a time, it does not destroy his title.

I am fully convinced that the tenure of land in Fiji is tribal, and that the title is vested in all the full born members of the tribe, commoners as well as chiefs; not in any one individual, nor in any class of individuals, which excludes the commoners. Though the tribal land is in many places sub-divided among households and individuals, yet each owner holds for the tribe, and not for himself alone. He cannot alienate the land from his tribe, nor can he so alienate it as that his own heirs shall not inherit. He may, as I have already explained, give a piece of land together with his daughter to a stranger (kai tani), whom he wishes to attach to himself.

This land, however, is given not to the stranger, but to the taukei's daughter, or rather to the son who shall be born of her. Her child comes in among her father's heirs as far as that plot of land is concerned; but, if she die childless, the land reverts to her kin. It does not belong to her husband.

No man, whether chief or commoner, is the absolute owner of the soil. He has no more than a life interest in it. He may dispose of that interest if he please, but he can do no more. Nor is the whole tribe the absolute owner. Each generation does but hold in trust for the next, and the tribe is under obligation to hand down the tribal estate undiminished for ever. Land with the Fijian is not a chattel to be bought and sold. "The earth does not lie in our hands," he says.

But there can be no doubt that many of the natives, under the tuition of the white men, learned to treat it as a chattel, and disposed of their lands with the full understanding that they were parting with them for ever. Whether they had a right to do so, or not, is quite another question. In my opinion they

* Mr. Thurston admits that, though the chief has the right and power to remove the people from their lands at his will, the exercise of his power would be regarded as an act of gross injustice, if there had been no failure of service on the part of the people.

had no such right.* Certainly neither chief nor taukei had any right, independently one of another, to dispose of the fee simple, nor do I believe that the combined consent of both chiefs and commoners could establish such a right. The land was a public estate belonging to all the full born men, and it was strictly entailed, the heir being the posterity of those men to all generations. It is impossible to cut off an entail such as this, for the heir can never be a consenting party.

If, therefore, my case be made out, the cession of Fiji did not fairly carry with it all that was supposed to convey. It is certain† that, when the cession took place, the chiefs understood that they were making over the lands, as well as the sovereignty, of the group; but it is equally certain, from the commoners' point of view, that they had not the title in their hands. It behoves us, therefore, to think well as to what we shall do with lands which have been thus acquired, for in all righteousness it is the management, not the ownership, of the Fijian estate which has come into our hands.

NOTES *on the OCCURRENCE of STONE IMPLEMENTS in* SOUTH RUSSIA.

By WILLIAM D. GOOCH, Esq., C.E.

HAVING during four years residence in South Russia paid some attention to the presence of prehistoric relics in the immediate district around me, I propose to lay before the members of the Institute a brief account of my observations. It is seven years since I left Russia, and my memoranda and collections are to a great extent dispersed, I can therefore bring for exhibition only a small portion of the specimens collected, and furnish a brief *résumé* from memory of the facts of their discovery.

From 1869–72 I was engaged upon railway work, and the establishment of iron works and coal mines in New Russia, at a site upon the sources of the “Kalmiuss” river, centrally

* I am not sure that the majority of my brother missionaries in Fiji hold this opinion, but I am sure that they have acted as if they held it. There have been no fewer than forty-three of us in the group, and of these only three bought land, though there is not one of us who was in Fiji before the influx of the white men, and who did his work even decently well, so as to gain the confidence of the natives, but who might have had plenty of land for little more than the asking.

† I say “it is certain,” because Sir Hercules Robinson, who was thoroughly open and straightforward throughout the whole transaction, was very explicit on this point. And a question asked by Ratu Savenatha on behalf of the chiefs shows plainly that they understood him.

situated on the portion of the Donetz coal-fields in which the bituminous coal is developed.

During this period, upon explorations to ascertain the value of coal, lime, and ironstone beds, I became well acquainted with the western portion of the Donetz coal basin, an area 100 by 60 versts, being much assisted by the Russian ordnance maps of 3 versts or 2 miles to 1 inch.

The "geology" of the district consists of a "carboniferous" base, in which the strata vary much by contortion or dislocation, but the surface of which has by denudation been worn very nearly level. The dislocations and foldings are *rarely* the causes of scarps rising abruptly a little above the general level, which falls gradually southwards towards the Sea of Azoff.

This plain is typical of "steppe country;" it has been eroded along the lines of the principal faults and dislocations, till a river system is now mapped out upon it which has reached a depth of excavation of 250 feet; it is along the eroded lines of the rivers, and coincident with the greater dislocations that the "carboniferous" sections are clearly exposed, and should be studied like the leaves of a book.

The plain, however, is quite devoid of any indications of the ferrous strata below it, being covered by thick beds of—

1. Triassic, marls, and sands—the thinning out of the northern beds, sometimes 60 feet in thickness.
2. Thick brown clay—15 feet, with chalk nodules interspersed. It is devoid of remains of any sort, and is probably *pleistocene*.
3. The "tchornozem" or black earth alluvium which is so characteristic of all South Russia, devoid of organic remains, yielding worked flints (pleistocene?).
4. In pockets and patches, not easy to place in their true geological origin.
 - (a) White and coloured clays and strong marl with iron ore of hematite character with very strong colouring of chrome and other oxides.
 - (b) A boulder clay, like pleistocene, and containing bones, which fell to pieces immediately on exposure to the air. These appeared to be bones and teeth of hippopotami or allied animals. I had no means of ascertaining.

(The whole of these patches and pockets which I noticed marked a line parallel to and not far from the porphyritic outbursts to the south of the coal-fields which are its limit in that direction.)

5. Lastly, the river systems yield—

- (a) Sandy gravel with flints, at the junctions of several of the rivers on the northern part of the district;
- (b) And close grey clay, the detritus of the district by the action of frost.

The beds I hoped to find Anthropological traces in were 2, 3, and 5, but on examination it was only No. 3, the *chernozem* or "black earth," which yielded anything; and the types found, as will be seen by the few specimens exhibited, seem essentially to be of a *surface* character.

In travelling over the vast area of these steppes or plains the only things which contribute to the travellers knowledge of distance and direction are large tumuli or "moghili." These are very numerous; from the summit of one, I have counted 100 in sight at once. They are solitary or in groups of as many as nine. They vary very much in size, and they are only found on the level of the plains, or as terminals to lower spurs at the forks of streams, left by erosion; I have never met with any instance of them in the river bottoms.

The absence of trees and the fact that the villages are all built in the valleys near water, makes the presence of these tumuli a very conspicuous feature of these steppes, as they really are often the only objects which break the level monotony of the horizon.

Besides these "moghili" there are large "fields" which are covered with small tumuli of about equal height, 2 to 3 feet, sometimes arranged with considerable symmetry.

It is very doubtful whether these are *barrows* or only the mounds made by successive generations of the "steppe stoat," which is very abundant, and whose burrows mostly, but not always, are to be found in the mounds.

Whatever the origin of these fields, sometimes 100 acres at least in area, I could in no way trace any greater number of flint chips near them, and in several sections where the earth-works of the railway passed through them, there was not a vestige of anything found.

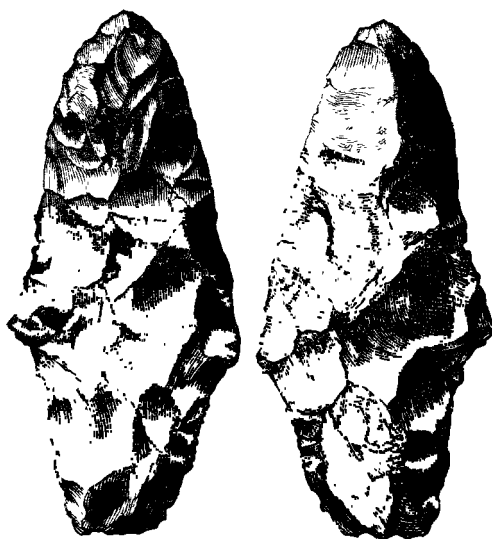
The "moghili," on the other hand, from whatever date they may take their origin, are evidently places of sepulture, and when excavated yield weapons and ornaments, &c., in bronze and iron with bones, and fragments and weapons in flint.

The accompanying woodcuts represent examples discovered in "moghili" near to the village of Jeleznaya. Fig. 1 is from the interior of a mound terminal to a spur at the junction of two streams, fig. 2 from a "moghil" on high ground near the same village.

FIG. 1.



FIG. 2.



These "moghili" without exception have been examined for treasure. I never saw an instance of one where a pit in the summit or a hole in the side did not remain as evidence of an attempt to wrest treasure from its keeping; for the actual discovery of very valuable gold jewels in some, has raised the cupidity of the inhabitants from time to time; and the "golden legends" handed down of the gold, &c., which was buried in the grave of such and such a chief, leads to occasional attempts, when the country-side is out *living* on the steppes harvesting, to try their luck at the nearest "moghili."

In the villages now degraded to use as gateposts and door-jams are to be seen graven stone images, with a high Parsee or Persian cap on. These are reported to have originally been placed on the summits of some "moghili," chiefly the most conspicuous ones, but I could not with certainty trace the special mound from which any of these "effigies" had come. It seems probable that they were "effigies" of heroes, whose mounds they decorated, and were probably also "gods."

During the progress of our railway, the sections of several of these "moghili" disclosed a core of stones, in which were bones, ashes, weapons, &c., surrounded by the stones in a heap or cairn, not apparently as a cist. This was surmounted by an earth mound with rough stones at its summit.

Several were quite devoid of any relic save boulder stones. Only a few contained flint relics, and these, when present, sometimes accompanied the bronze weapons, &c., sometimes were scattered in the earth of the mound.

As I before said, all these tumuli bore ample evidences that they had been previously disturbed, so that the data furnished by them are very unreliable.

The relics in flint found in the "moghili" do not differ from those of the black earth bed generally, and I noticed that the vicinity of a large mound or group of mounds did not furnish, as I was in hopes it would do, any greater number of flakes or implements than the ordinary surface of the steppes. In fact the majority of my finds were removed from the vicinity of any visible mound or barrow.

I feel doubtful, therefore, whether in *any case* these mounds or "moghili" can be ascribed to a stone age, and look upon the presence of the stone relics in the sepultures either as a matter of accident or their having been placed as charms with the corpse, such as seems to have been the case in some "British burials."

Polished stone weapons are rarely found in these mounds; two instances only I had authenticated—one of these was an axe of ordinary type, the other I did not see. I met with none myself.

The implements found by me were only of *flint*, which mineral is plentifully supplied by the chalk formation under which the coal strata dip to the north.

It therefore may be stated as the sum of my experience that the "black earth" is the true horizon of the "stone age" here, and in types the "surface" group only is represented; the river gravels, which I had hoped to yield *Paleolithic* weapons, were devoid of any remains where I had a chance of examining them.

Even in the black earth the superficial stratum *only* yielded flints, and their presence through the agency of man was specially marked, as all the specimens bore evidence of artificial fracture, and were the only fragments of stone of any sort to be found *in* the black earth, which is black mould in the finest possible state of division, and is remarkable for its utter absence even of grit.

The most highly finished specimen exhibited is also the most highly finished I have found or seen from the district, so the range of art-development seems to have been low. The general aspect strikes me as properly placing them in the "surface" group.

The implements embrace cores, scrapers, knives, cutters, arrow and javelin heads, piercers, &c.

I have seen no vestige of pottery.

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ANTHROPOLOGICAL MISCELLANEA.

NOTES ON PREHISTORIC DISCOVERIES IN CENTRAL RUSSIA.

By C. H. E. CARMICHAEL, Esq., F.R.S.L.

THERE is, on the whole, so little accessible information to be found in this country with regard to the explorations which are from time to time carried on in Russia, that I am induced to offer these brief notes concerning the examination into the remains of the stone age in the districts of Yaroslaff and Vladimir, made by M. Poliakoff, as deputed by the Scientific Academy of St. Petersburg. If they should lead to our obtaining fuller details, my purpose in putting them together will have been amply served. After looking in various likely sources, I have been unable to find any other account than that which I now bring before our Society, and which is given among the "Scientific Notes," in the number for December 16th, 1878, of the "*Rivista Europea-Rivista Internazionale*" of Florence.

The region in which M. Poliakoff's investigations were carried on may roughly be described as West Central Russia, viz., the districts of Yaroslaff and Vladimir. They appear to have been carried on partly in the alluvial deposits of the dried-up bed of a formerly existent lake,* near the town of Karacharovo (? Karakaroff), partly through the excavation of barrows near Yaroslaff, and also partly by exploration of the sandy deposits ("poggiuoli," strictly speaking = galleries or balconies.† but probably to be taken as = "poggi," i.e., hillocks; in fact, sand hills or dunes) on the banks of the River Oka, in the district of Murom.

It appears to me, therefore, that there are here three separate, and in all probability distinct, classes of prehistoric remains to be dealt with, and, to a certain extent, scanty as my present sources of information are, the different character of the various discoveries bears out this view.

In the bed of the old lake, as I understand the somewhat involved language of my authorities in regard to the "locus" of the discovery, remains similar to those of the Swiss lake-dwellings were found. Among these are enumerated unpolished implements

* This lake-bed, it may be well to add, is described as bearing the appearance of having been the site of the detritus of a glacier (*luogo di deposito di um ghiacciaio*).

† The difficulty of fixing the precise meaning, in the present instance, of the word "poggiuoli," which received some attention in the discussion that followed the reading of these Notes, may perhaps best be solved by considering it to indicate banks or walls of sand on the river side.

of the palæolithic age ("utensili di pietra rossa appartenenti al periodo paleolitico"), accompanied by bones of the Mammoth, the Rhinoceros, and *Bos priscus*. The character of the deposits, we are told, indicated clearly the co-existence of man with these extinct mammifera in Russia as in other parts of Europe. The Lacustrine explorations of M. Poliakoff were made in company with Count Uraroff, and led the former to undertake a tour in Western Europe, to visit the principal archæological museums, for the purpose, it may be supposed, of comparing the prehistoric remains there with those which he had himself discovered. Among the sand-hills of the Oka, as I gather, both polished and rough flint implements were found in great numbers ("una quantità enorme di utensili di selce, levigati e rossi") and of the most varied shapes ("di forme svariatissime"). I can only wish that it had been more clearly stated what was the relation which the deposits of rough and polished flints bore to each other in the sand hills and in the river bed, for the discoveries appear to have been made in both places. The flint implements, we learn, so far at least as the Oka deposits are concerned, were always accompanied by bones of the *Castor fiber*, *Sus scrofa ferus*, and *Bos primigenius*, species which, it is added, in some respects at least rather superfluously, no longer exist in the neighbourhood.

With regard to the barrow diggings near the town of Yaroslaff, we are told that they yielded most important collections, including human crania of the neolithic period, accompanied by hammers and celts or hatchets of polished flint ("martelli ed ascie di selce levigato"), and bones of many existing species of animals. As a geographical note elucidating the locality of these explorations, I may mention that the River Oka falls into the Volga near Nijni-Novgorod, the city of the world-renowned fair. In conclusion, I can only regret that my details have been unavoidably so meagre, but I trust these notes may lead to our learning something more both as to the facts and the subsequent fate of M. Poliakoff's prehistoric discoveries in Central Russia.

ON JADE IMPLEMENTS FOUND IN SWITZERLAND.

By HODDER M. WESTRÖPP, Esq.

THE discovery of a jade implement in Switzerland has lately* given rise to a somewhat lengthened correspondence in the *Times* with regard to the locality whence it could have come from.

Mr. Maskelyne and Professor Rolleston profess to believe it came from the East, and Professor Müller has also adopted this view, adducing some fancied analogies to the introduction of language.

There is, however, every reason to believe that the jade, of which the implements found in Switzerland is made, may have proceeded from some indigenous rock, if not exactly in Switzerland, in some other European locality. Two "competent authorities"

* *Ide* issue January, 1880.

write that jade is found in Europe, Mr. Page tells us that it is found "in various parts of Europe," and Mr. Bristowe expressly mentions the Harz Mountains and Corsica. Saussurite, which is termed by Mr. Bristowe, "the jade of the Swiss Alp," occurs on the borders of the Lake of Geneva and on Monte Rosa.

According to Mr. Rudler, jade occurs also at Schweinsal, near Leipzig, and at Potsdam, near Berlin.

Would not probability lead us to believe that it is safer to conclude that the jade of the Swiss implement came from some of these European localities than to have recourse to the wild hypothesis of believing those implements came all the way from the East? To believe that these Swiss implements came directly from China, passing through numerous nations and tribes in prehistoric times, requires too great an amount of belief. It is a case of "credo quia impossibile."

In the Swiss lake-dwellings the implements discovered were made of materials found in the neighbourhood. At Wangen the rolled stones of the neighbourhood, originally derived from the Rhaetian Alps, formed the material of the greater portion of the implements. At Moosseedorf the material appears to have come from the Swiss Jura (Rhalk), some from the Alps. At Nussdorf they were made of the rolled stones found in the lake close by. What is there then to prevent us supposing the jade also of which the implements were made came from some locality not far off?

Jade not being found in Switzerland at the present day is no proof that it never occurred there. Pliny tells us India is the sole parent of the precious stones, opals, yet at this present day no region of the East Indies produces these gems; as Mr. Maskelyne writes, "we know of only two certain localities for opal, Mexico and Hungary."

The decision with regard to the locality whence the jade implement came, does not properly fall within the sphere of the mineralogist, it more properly belongs to that of the prehistoric archaeologist. If a mineralogist pronounces the jade of the implement found in Switzerland, as Professor Rolleston writes, to be identical in chemical composition with New Zealand jade, to what a wild hypothesis may it not lead? Identity of chemical composition, no more than identity of form, proves that an object came from one place rather than from another. The diamond of India and the diamond of Brazil are identical in chemical composition and in crystallised form, but no one will say that the Brazil diamond came from India. I have pointed out in my "Prehistoric Phases" that identity of form in stone implements does not prove that they all originated in the same country. Identical forms in stone implements are found all over the world among the most remote and unconnected races, this similarity affording strong evidence of the uniformity of the operations of instinct and the suggestive principle in the mind of man among all races and in all ages. The prehistoric man was evidently solely guided in his choice of a material for his implements by its hardness and toughness, "properties

eminently fitting it for an implement," as Mr. Maskelyne writes, and what can be harder and tougher than jade. That a green jade implement had "in some sense a sacred character," is a fact too far above the mind of a New Zealander or a New Caledonian. If jade implements "were borne westward by emigrating peoples, as they might bear their household gods," as Mr. Maskelyne writes, why do we not find household gods from the East also in Switzerland?

It is now a generally accepted view that, before the advent of the Aryans, the whole of Europe was originally occupied by a race of Turanian aborigines, evidently the race which used stone implements. As Mr. Ferguson writes, "there seems no doubt but that the people of the stone age were generally, if not exclusively, of that great family which we now know as the Turanian." In the opinion of M^M. Rochet and Rütimeyer, the inhabitants of all the Swiss lake-dwellings of the stone age were the same indigenous peoples (autochthones) in their different stages of gradual improvement. The Aryans appeared in Europe only at a much later date. "The Aryans," writes Mr. Fergusson, "were those who introduced the use of iron, and with it dominated over and expelled the older races."

No proof has been as yet advanced that Europe had any communication with the East, either in language or transport of tools, in the stone age.

Can Professor Müller tell what language was spoken by the people of Europe in the stone age, or if any Aryan words were used in that age? Greek, Latin, Celtic are attributed to an Aryan source, but we have no proof that any of these languages were spoken in the stone age.

Prof. Rolleston remarks in his last letter to the *Times* that no jade chips have ever been found in Europe; he seems not to be aware that jade is a stone too tough for chips or flakes to be knocked off it. Flint, on the other hand, can be readily chipped or flaked.

The presence of nephrite implements in the Bienne lake-dwelling, Schaffis, "one of the oldest in the stone age," only adds to the improbability of these implements coming from the East in prehistoric times.

The writer of the leading article on jade in the *Times* of January 15th has made a strange mistake—he has made a scraper and a *strigil* identical. These two objects belong to very different and widely separated phases of civilisation. A scraper was generally of flint, and was used in prehistoric times by savage men for cleaning and scraping the skins of animals; a *strigil* was an instrument usually of bronze, used in Greek and Roman times for scraping off perspiration on leaving a vapour bath.

In the discussion which arose on the foregoing, Mr. M. J. Walhouse expressed the opinion that the theory of jade being native and existing somewhere in Switzerland was quite untenable.

If it existed there, he said, it must still exist *in situ*, and would not have escaped discovery in this age of mineralogical and geological research and yet have been found by the prehistoric savage inhabitants. Moreover, no fragments or pieces in the rough have been found, but always shaped implements. The presence of jade in Western Europe at such a vast distance from its only known habitat in the remote East is certainly inexplicable in our ignorance of the extent of prehistoric migrations and intercommunication; but it is more conceivable that objects which, like jade weapons, have always been regarded with superstitious respect should have been carried from country to country in the long unknown ages of antiquity, than that jade itself should have existed undiscovered in Switzerland till now. Besides the jade axe discovered lately in the bed of the Rhine near Geneva, which occasioned this discussion, several others, many of beautiful make and material, have from time to time been found in Switzerland, a minute list and account of which may be seen in Dr. Ferdinand Keller's very exhaustive work "The Lake-Dwellings of Switzerland."

Mr. Carmichael, M.A., had also expressed his opinion on the subject at a meeting of the Royal Society of Literature; he was unable, he said, "to appreciate the great importance which had been attached, from various points of view, to the discovery of a jade scraper in a Swiss lake-dwelling. He saw no reason to doubt the antiquity of commercial and other intercourse between East and West, as well as between distant portions of the West. It appeared to him that all the tendency of researches into the history of early man proved such intercourse. Quite recently, a distinguished Cornish antiquary, Mr. W. C. Borlase, M.P., in the course of a series of barrow excavations in Cornwall had found in a barrow what he believed to be an Indian money-cowrie, a discovery which he had described in the first number of *The Antiquary* for January, 1880. On this discovery Mr. Borlase wished to base a theory that it was proof of an early Phœnician trade intercourse with Britain. This view Mr. Carmichael could not accept on so slender a basis, but he could and would admit that it was an additional illustration of the antiquity of commercial and other relations between East and West. So he could not base any theory upon the discovery of a single jade instrument in Europe. But he saw no reason why jade implements, whether as objects of reverence, as some held them to have been, or of commercial rarity and value, should not have been from time to time imported into the West, just as much as money-cowries. The question of language, he thought, did not properly come into discussion. He did not feel bound to say what language, whether Aryan or Turanian, the Swiss and other lake-dwellers spoke. But it should be remembered that the term 'prehistoric' is necessarily used in a rather vague sense, and it is quite certain that some lake-dwellers continued that mode of habitation within historic times. Evidence of this,

he might mention, was seen in the first Scottish lake-dwelling discovered, that of the Dowalton Loch in Galloway, which he had himself visited in 1866, in company with Sir Walter Elliot. Household utensils with inscriptions in the Roman character were there found mixed with dug-out canoes, and other objects of the type ordinarily known as 'prehistoric.' There seemed to be as yet no evidence to show that any lake-dwellers in Europe were other than Aryans, and Mr. Carmichael could see no reason for doubting the possibility of the early importation of jade, or for basing on the fact, if proved, any special theories either as to the race, language, or religion of the importers."

"SMITHSONIAN CONTRIBUTIONS TO KNOWLEDGE." Vol. XXII.

THE latest volume of the "Smithsonian Contributions to Knowledge" is more than ordinarily full of interesting matter. The article on "Antiquities in Tennessee," by Joseph Jones, M.D., brings to light many curious and suggestive facts. The favourite mode of interment among the ancient inhabitants of Tennessee seems to have been in cists or stone graves, greatly resembling the prehistoric graves in Europe, especially as these stone graves were generally covered over with large mounds of earth resembling barrows, these being sometimes surrounded by extensive earth-works, and at other times raised near to fortifications which, in their mode of construction, have a strong affinity with ancient British cliff castles, the similarity being increased by the numerous circular depressions found in them like British hut circles, which led Catlin to believe that the Indians were instructed in these arts by a supposed colony of Welshmen under Prince Madoc, in the 14th century. The stone graves of Tennessee are very numerous, and consist of small cists, which either contain bones of children or those of adults piled together after having been deprived of the flesh. These numerous small graves gave rise to a current belief in the former existence of a race of pigmies, but Dr. Jones has proved that the smaller bones are invariably those of children, whilst the adults, instead of being pigmies, must have been veritable *giants*, since many measured seven feet and upwards. These small cists would appear to represent the earliest burials, as in some cases they are found *under* others, the interments in which were at full length, in a species of stone coffin formed of slabs of stone, one slab frequently forming the side of two graves, and the whole being grouped round a central pyramidal altar, upon which stood a large vase or fire vessel, full of ashes carefully preserved, and with animal bones on and around it. Curiously enough, some of the small cists contained only bones of birds and small animals, and these were also found in the larger tombs, which contained, besides numerous vessels of pottery of various shapes and colours, beads and shell ornaments beautifully made, stone axes and arrow-heads, and many curious clay images, but no metal, excepting

a few copper ornaments. The cross appears prominently on some of the vases. All the crania appear to have been more or less artificially compressed. Dr. Jones also speaks of some burials in caves and of curious rock paintings, and sums up by pointing out the differences existing between the burial customs in Tennessee and other parts of America. The difference in the form of their idols he regards as suggestive of an Eastern or Chinese origin, and the presence of large sea shells as proving either commercial relations with the shores of the Atlantic, the Gulf of Mexico, and the Pacific, or that these shells had been preserved in migrations from remote regions, "a conclusion," he says, "sustained by representations of Mexican and Central American birds and animals on their pipes and culinary vessels, and by the use of obsidian, fluor spar, and serpentine in the construction of their idols and warlike implements."

The article which follows, on "The Sculptures of Santa Lucia, Cosumalhuapa, in Guatemala," by S. Habel, M.D., presents us with some discoveries in Guatemala, consisting of very remarkable sculptures from Santa Lucia, Cosumalhuapa. These sculptures, although they bear a certain resemblance to those of Mexico, have yet so many peculiarities of their own as to prove them to be the work of a different, though cognate people, whom the author considers to have excelled the Mexicans not only in design, but in degree of culture, as illustrated by these sculptures. The first noticeable peculiarity consists of one or more curious staves, variously bent, proceeding from the mouth or girdle of the figures, which the author believes to be intended to represent speech; the staff being so bent and divided by buds or nodes as to be easily translateable should the key be forthcoming; then there are certain signs supposed to denote numerals; as also tokens of an approach to anthropomorphism, the sun and moon being represented by the head and shoulders of human figures very highly adorned, the cross figuring conspicuously among the emblems of the moon goddess. The worshippers of both, present human heads of different races as sacrifices, and there is a great peculiarity in the dress of the latter; they invariably wear a garter with a loop round the right knee, the toes of that foot being bare, whilst the left foot is enveloped in a curious shoe. Much more might be said of these remarkable sculptures did space permit.

The next article describes the Smithsonian Archæological Collection, of which we can only say that it is full of interest, most of the articles greatly resembling the prehistoric remains of the Eastern Hemisphere. More particularly noteworthy are the stones with cup markings, supposed to have served as nut stones and paint mortars; some splendid Mexican vases; and some sculptured foot-marks from Missouri, strongly resembling those of Buddha from India.

Then follows an article upon "The Palenque Tablet," illustrated by some splendid plates; containing also a dissertation on "Aboriginal Writing in Mexico, Yucatan, and Central America," and an

Appendix relating to the "Ruins of Yucatan and Central America," but of which a bare mention must suffice.

The last of the "Contributions," on the "Cave Relics of the Aleutian Islands," deserves a more elaborate review than we can here bestow upon it. These relics are referred to the later prehistoric age, but as the date 1720 to 1730 is given, we must understand the term *prehistoric* to mean simply the time preceding the discovery of these islands by the Russians in 1757; and the chief value of the relics consists in the evidence afforded by them of the continuance to so late a period among this primitive people of habits and customs which seem traceable to Egypt, Peru, and Central America, in very remote epochs. The mummies of the Aleutian Islands bear a strong resemblance to those of Peru, but they also have an affinity to those of Egypt, although not to so great an extent. The most noteworthy resemblance to Peruvian mummies is in the crouching position, and in the use of a *net* as one of the coverings. The net as a covering for the dead is found not only among the Aleuts and Peruvians, but also in Australia and Ancient Egypt, where the mummies are frequently enveloped in ornamental netting, looking like a survival of an older custom. Hutchinson, in "Two Years in Peru," says that in Granada and among the Chinchas of South America the net is a symbol of death, and doubtless it had the same significance elsewhere. Another curious part of these Aleutian burials is the use of masks as a covering for the faces of the dead, in this also reproducing a custom very widely distributed among ancient peoples. But perhaps the strongest resemblance of all may be found between these burials and those mentioned in the first part of the same book on the cave burials in Tennessee, where we see not only the same crouching position adopted, but also that the coverings of the corpse bear a strong affinity, consisting of skins and of network, into which birds' feathers have been inserted, red being the prevailing colour in both instances, although the coverings of the Aleutian mummies seem to have been more elaborate and numerous, these varying, however, in both places, according to the wealth of the deceased or the affection of the survivors.

Altogether, there is much food for thought in this volume of the "Smithsonian Contributions to Knowledge." The more we study American archaeology and ethnology, the more convinced do we become that as yet we stand but on the threshold of knowledge, peering feebly into the dark unknown, whilst every contribution which takes us a step nearer to light and truth must ever be hailed with pleasure and gratitude. American antiquaries, as a rule, seem inclined to under-rate the age and importance of their prehistoric remains; but we cannot doubt that the more these remains are studied, the farther back they will be pushed in the history of our race, and the more important will they become in establishing the migrations and intercommunications of far distant times, the clue to which has long been lost.

A. W. BUCKLAND.

“CONTRIBUTIONS TO THE HISTORY OF THE DEVELOPMENT OF THE HUMAN RACE.” Lectures and Dissertations by LAZARUS GEIGER. Translated from the Second German Edition by DAVID ASHER, Ph.D. London: Trübner and Co., 1880.

THIS work consists of five lectures delivered in the years 1867–1870, and of an essay written in 1869–70, intended for a scientific periodical, but which was not sent to its destination owing to the author's death. The dissertations are chiefly concerned with the Indo-European peoples, but the first and second lectures have a wider scope. In these two lectures, which treat of language and of the earliest history of the human race in the light of language, we have a general application of the author's method. The value of this cannot be denied. Geiger well says, “Notes are to music what language is to the objects of human thought,” and if this is so, the study of language ought to reveal the ideas formed by man in past ages, and the condition of culture exhibited at various stages in the development of human kind.

Judging from the words common to the peoples of the widespread Indo-European stock, the primitive race from which they are sprung cannot have reached a very high degree of civilisation. Geiger considered that the “most embryonic forms of the Indo-European nature” were represented by the barbarous inhabitants of Britain, who exhibited the original stage of Keltic culture. As depicted by Geiger, that primitive race must have consisted of a light-haired and blue-eyed people, who painted or tattooed their bodies; practised cannibalism, which they regarded as “a downright good religious action;” and had no other notion of justice than that expressed in the formula “an eye for an eye, a tooth for a tooth.” Nevertheless, they “possessed a political organization, bred cattle, carried on agriculture, and even trade, and had productions of skill and industry exhibiting a comparatively high stage of culture, and a not inconsiderable intercourse with other peoples.” Thus they possessed the ox, sheep, pig, horse, stag, and dog, although Geiger thinks that they knew the last-named animal only in its wild state. They cultivated rye and barley, but it is very improbable that they were acquainted with wheat. They possessed gold and iron, and perhaps also silver and brass, but probably not copper, and they did not know pearls or precious stones. They made use of vehicles on land and water, but in their navigation they used oars, and not sails. In the preparation of their food they had recourse only to the process of roasting, and fire was produced by the wooden fire-drill, the mode still employed by many uncultivated peoples. Of weapons, they possessed the sword, but not the bow, for which, as well the arrow, each branch of the Indo-European family employs a special word; and their tools and implements were of the simplest description. Finally, their senses had not the fine development observed among the present European peoples.

Although "the sense of the colours familiar to them was exceedingly keen and lively," yet their perception of colour was limited, and appears to have been restricted to black, red, and yellow or golden. These colour-notions were based on the phenomena of the night, the dawn, and the sun, "which produced an impression on the people of those times such as we are now scarcely able to conceive or to feel."

The facts referred to by Geiger, as showing the notions formed by the primitive Indo-Europeans, and the condition of life they had reached, are of great interest from this point of view. The interest attached to them is increased when we consider the light they may be made to throw on the primitive home of that race. The conclusion arrived at by our author on this point is that the primitive Indo-European stock was of Northern origin, Germany having been its home. This notion is so contrary to what is now almost universally supposed, that the arguments in its favour will hardly receive the attention they deserve. They are, however, far from convincing, and, indeed, the facts by which they are supported are consistent with an Asiatic origin of the primitive race from which the Indo-European peoples have sprung. Geiger starts with a physiological argument. He affirms that the fair type, represented by the combination of light hair and blue eyes, is essentially confined to those peoples, who have therefore remained most unmixed where the blonde type shows itself purest, *i.e.*, in Germany. His other arguments are derived from language. Thus, on the presumption that, while they were acquainted with rye and barley they had no knowledge of wheat, he assumes that the primitive race must have lived in Northern Europe, as an area in which rye and barley, but not wheat, would thrive is to be found only in that region. Another argument is drawn from the names applied to *tree vegetation*, particularly the birch, the beech, and the oak. These trees are especially prominent, and, according to our author, as they received their names at one and the same time, they must have been found together in the region where they were named. The birch, to the primitive Indo-Europeans, was the *light* or white tree, and the beech the *dark* or black tree, except among the Greeks, who have applied the early name of this tree to the oak, as the Romans transferred the name of the birch to the ash. The explanation of these facts given by Geiger, who places the ancient German area of the beech tree in the Thuringian Forest, is that "the Romans, or rather their near Italian kindred and ancestors, populated Italy from the north, and therewith the birch disappeared from their view; the Greeks, advancing still farther to the south, now no longer required the old name for the beech. In the conception of the Italics, the birch was superseded by the ash, which, from its whitish hue, reminded them of it, and for the Greeks a similar oak took the place of the beech." This appears, however, to be inconsistent with the further remark that the general word "tree" was used for the "oak" by the Greeks and also the Kolts. Another argument in support of the con-

clusion that the primitive Indo-Europeans had a Northern origin is derived from the fact that "the common vocabulary shows us snow and ice, winter and spring, but not summer and autumn." Their early habitation in a temperate, but still frosty climate, agrees with "the poverty of the Indo-European languages in common names for insects." Thus, ants, gad-flies, and gnats, were known, but not the spider or the bug. Again, the primitive race were acquainted with the bear, wolf, moose, badger, fox, otter, and beaver, but not with the jackal. Among birds, they knew the vulture, raven, starling, wild goose, and duck, but not the pigeon. They had a general word for worm, and also for serpent. They had no such word for shell, and the only fish having a common name is the eel.

Assuming that these particulars, obtained by a comparison of the vocabularies of the Indo-European peoples, can be relied on, it by no means follows that their primitive home was in the region pointed out by Geiger. The flora mentioned by him is that of the temperate zone, which comprises the whole of Central Asia, as well as Central Europe.

That flora is met with in the Altai region, which possesses also the pine, a tree known to the Indo-Europeans before their separation, but not indigenous to Germany, as our author's theory would require. The primitive fauna of that race was no less Asiatic in character, and the fact that it did not include any fish but the eel shows that the early home of the race can hardly have been in proximity to the ocean. The Indo-Europeans have no expression "properly and exclusively" signifying the sea, nor does their ancient common language possess a word for "salt" or for "wave." They must therefore have been an inland people, and as the Altai region of Central Asia possesses also all the metals known to them, we shall perhaps be justified in looking to this region as their primitive home, unless it is to be sought in a more northern area in the valley of the Yenisei, or the Obi, the climate of which more nearly resembles that of the early Indo-Europeans, with its two months of summer and ten months of winter, as mentioned in the Persian Vendidad. M. Elisée Reclus, in the "*Nouvelle Géographie Universelle*," states that the extinct civilised peoples who formerly inhabited Siberia are now popularly spoken of by the general name of Tchoude. The principal seat of their civilisation was in the mountains near the Yenisei, and M. Reclus thinks that they were exterminated in the long wars which preceded the migration of the Barbarians. The Tchoude were of Finnish origin, and in this fact we have a confirmation of the opinion that the primitive home of the Indo-Europeans was in Central Asia, and not in Germany. One of Geiger's chief arguments is based on the assumption that the combination of light hair and blue eyes found in the fair German type is essentially Indo-European. After accounting for the black hair and eyes of the Hindoos and other dark members of this stock by intermixture with peoples of a dark type, he says, "But since, so far as we are aware, no non-Indo-European people

ever existed from which the Northern Indo-Europeans could have contracted the light colour, we are, from the ethnological point of view, certainly more justified in regarding the fair type, wherever we meet with it, as the unalloyed Indo-European type. This view favours the assumption that the Indo-Europeans have remained most unmixed where the blonde type shows itself purest." The answer to this reasoning is that in the North a people *does* exist from whom the Indo-Europeans may have obtained their light colour, as Geiger himself in reality admits when he says that "In the North, neighbouring Fin tribes in some measure partake of this peculiarity." These tribes belong to the great Tchoude family, the ancestors of whom were doubtless in contact with the primitive Indo-Europeans in their Asiatic home, if, indeed, they did not bestow the fair features which Northern Europeans now exhibit. Numerous facts bearing on the position occupied by the ancient Tchoudes in relation to the history and development of the human race are being gradually collected, and they will probably be found to throw much light on the origin of the Indo-European and other so-called "Caucasian" peoples.

We have but little space left, and can only casually refer to the other questions discussed in Geiger's work. It may be admitted that language originally expressed only visible activities, and that at one time it had not any existence, without the necessity of supposing that man was at any time without *reason*. Of course, this depends on what is meant by "reason," and when reference is made to "a being that neither speaks nor thinks, at least certainly not in the sense in which we are conscious of thinking as our inborn human possession," we see that our author uses the word in a sense different from that in which it must be employed in case the faculty of reasoning is allowed to the ape or the dog. That animals do reason there can be no question, and if so man must always have possessed that faculty. The conclusion arrived at in the Lecture on Colour-Sense in primitive times, that "We must assume a gradually and regularly rising sensibility to impressions of colour, analogous to that which renders glaring contrasts of colour so unbearable to a cultivated taste, while the uneducated taste loves them," is of great importance, as showing that the impressions conveyed through our sense organs may have received their present form by a gradual process of development or differentiation.

The Lectures on the Origin of Tools and of Writing, and on the Discovery of Fire, are full of interesting matter and ingenious speculation. Our author traces the discovery of fire to a religious origin, and he affirms that the fire-drill was invented for the purpose of religious worship, and that man "only subsequently learned to use it in practical life." He further supposes that the discovery of fire by means of the fire-drill was accidental, and that the "religious toying consisted essentially only in the rotatory motion without regard to what might become of it." This idea is hardly consistent, however, with the further statement that "this mode of producing

fire well suits the character of a period when man was not only destitute of any metal, but even as yet of stone implements, that is to say, of a wood age, such as must have preceded the stone age." The turning of the fire-drill in religious worship may have been connected with sun-worship, but we can hardly believe that this worship was introduced in the wood age, or that the use of fire was not known until after its introduction. It may, nevertheless, be true that "with the use of fire the mode of producing it, the primitive fire apparatus of the earliest times, was simultaneously diffused." As to the supposed wood age we much doubt its ever having existed, and even the production of fire by means of the drill may have been preceded by the use of the primitive flint and steel still employed by the natives of Tierra de Fuego, as it was formerly by the cave-dwellers of Europe. While disagreeing with many of Geiger's conclusions, we do not hesitate to say that the work under review is deserving of careful study, and we congratulate its translator, Dr. Asher, on the able manner in which he has performed his task. We hope that this volume of Trübner and Co's. English and Foreign Philosophical Library will have many readers.

C. S. WAKE.

THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

NOVEMBER 9TH, 1880.

EDWARD B. TYLOR, Esq., F.R.S., *President, in the Chair.*

The minutes of the last meeting were read and confirmed.

The following list of presents was announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

- From Professor HAYDEN.—U.S. Geological Survey, XII.
From Professor ECKER.—Archiv für Anthropologie, Band XII.
Viertes Viertel-jahrsheft.
From Professor AGASSIZ.—Notes on the Geology of the Iron and
Copper Districts of Lake Superior. By M. E. Wadsworth.
From A. L. LEWIS, Esq.—My Life with the Blacks in Australia. By
W. H. Ross.
From the AUTHOR.—Weitere methodische Studien zur Kranio-und
Kephalometrie. By Moriz Benedikt.
— Footprints of Vanished Races. By A. J. Conant.
— Fashion in Deformity. By Professor W. H. Flower, F.R.S.

- From the AUTHOR.—On the Languages of Australia in their connection with those of the Mozambique and of the South of Africa. By Hyde Clarke, Esq.
- Der Spreewald und der Schlossberg von Burg. By R. Virchow und W. von Schulenburg.
- Della Macrosomia. By Professor Cav. Cesare Taruffi.
- Gigante Chawang-in-Sing. By Professor Cav. Cesare Taruffi.
- Der Hradischt bei Stradonic in Böhmen, und die daselbst gefundenen Prähistorischen Gegenstände. By W. Osborne.
- Ueber einen Fund aus der jüngeren Steinzeit in Böhmen. By W. Osborne.
- Savage Life in Polynesia. By the Rev. W. W. Gill.
- On the Weapons, etc., of the Ancient Hindus. By Gustav Oppert, Ph.D.
- Some recent publications on Japanese Archæology. By Edward S. Morse.
- Mensuration des Aires du Crane et la Face. By Dr. Beaumanoir.
- Il Suicidio. By Professor E. Morselli.
- Etudes d'anthropométrie sur les canons Anthropologiques. By Dr. Paul Topinard.
- Who are the Scotch? By James Bonwick.
- From the BATAVIAN ASSOCIATION OF ARTS AND SCIENCES.—Tijdschrift voor indische Taal-, land- en volkenkunde. Deel xxv, Afl. 4-6.
- Notulen van de Algemeene en Bestuurs-vergaderingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen. Deel xvii, Nos. 2-4.
- Register op de Notulen der Vergaderingen, over de jaren, 1867-1878.
- Verhandeligen van het Bataviaasch Genootschap. Deel xxxix, 2e Stuk. Deel xli, 1e Stuk.
- From the SMITHSONIAN INSTITUTION.—Smithsonian Report, 1878.
- Smithsonian Miscellaneous Collections. Vols. XVI, XVII.
- Smithsonian Contributions to Knowledge. Vol. XXII.
- Anthropological Extracts from the American Naturalist.
- From the ANTHROPOLOGICAL SOCIETY OF BERLIN.—Zeitschrift für Ethnologie. 1880, Heft. 2, 3.
- From the ACADEMY OF SCIENCES OF KRACOW.—Lud. Serya, XIII, Czesi, 5.
- Pamietnik Akademii Umiejętności w Krakowie. Tom. V.
- From the IMPERIAL ACADEMY OF SCIENCES OF ST. PETERSBURG. Bulletin. Tom. XXVI, No. 2.
- From the AGENT GENERAL FOR SOUTH AUSTRALIA.—The Folklore, Manners, Customs, and Languages of the South Australian Aborigines. 1st Series. Edited by the Rev. G. Taplin.
- From the FOREIGN OFFICE.—Congress Internationale des Sciences Anthropologiques, Paris 1878.
- From the ACADEMY.—Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften. Wien. Philos.-histor. Classe. Jahrgang. 1879. Nos. 5-10, 1880. No. 1.

From the ACADEMY.—Math-naturw. Classe. 1, Abth., 1879, Nos. 1-10.

II Abth., 1879, Nos. 4-10; 1880, Nos. 1-3.

III Abth., 1879, Nos. 6-10; 1880, Nos. 1-3.

From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland, October, 1879.

— Transactions of the National Association for the Promotion of Social Science, 1879.

— Proceedings of the Geologists' Association, Vol. VI, No. 7.

— Report and Transactions of the Devonshire Association for the Advancement of Science, Literature, and Art, Vol. XII.

From the INSTITUTE.—Proceedings of the Royal Colonial Institute, 1879-80.

— Transactions and Proceedings of New Zealand Institute, 1879.

From the CLUB.—Proceedings of the Berwickshire Naturalists' Club, 1879.

From the INSTITUTION.—Journal of the Royal United Service Institution, Nos. 106, 107.

— Journal of the United Service Institution of India, Vol. IX, 43.

From the BOARD.—Eleventh Report of the State Board of Health, Mass., U.S.A.

— First Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts, 1879. Supplement—Health.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1442-59.

— Bulletins de la Société d'Anthropologie de Paris, 1880, February to April.

— Proceedings of the Royal Geographical Society. Vol. II, Nos. 8-11.

— Proceedings of the Asiatic Society of Bengal, 1880, Nos. 1-6.

— Proceedings of the American Philosophical Society, No. 106.

— Bulletin de la Société de Borda à Dax, 1880, Nos. 2, 3.

— Mittheilungen der K. K. Geographischen Gesellschaft in Wien, 1879.

— Journal of the Royal Asiatic Society, Vol. XII, Parts 3, 4.

— Proceedings of the Royal Society, Nos. 205, 206.

— Transactions of the Asiatic Society of Japan, Vol. VIII, Part 2.

— Proceedings of the Society of Antiquaries, Vol. VIII, No. 3.

— Transactions and Proceedings of the Royal Society of Victoria, Vol. XVI.

— Bulletin de la Société Impériale des Naturalistes de Moscou, 1879, No. 4; 1880, No. 1.

— Verhandlungen der xi, allgemeinen Versammlung der Deutschen Gesellschaft für Anthropologie, Ethnologie, und Urge-schichte zu Berlin im August, 1880.

— Mittheilungen der Anthropologischen Gesellschaft in Wien, Band X, Nos. 1-7.

— Scientific Proceedings of the Royal Dublin Society, N.S., Vol. I, Vol. II, Parts 1-6.

- From the SOCIETY.—Transactions of the Royal Dublin Society, Vol. I, Vol. II, Parts 1, 2.
 — Journal of the Asiatic Society of Bengal, Nos. 230–232, and extra number to Part 1, 1878.
 — Annual Report of the Leeds Philosophical and Literary Society, 1879–80.
 — Neunzehnter Bericht der Oberhessischen Gesellschaft für Natur-und Heilkunde.
 — Schriften der Physikalisch-ökonomischen Gesellschaft zu Königsberg, 1880–81.
 From the EDITOR.—Revue Internationale des Sciences, Nos. 7, 9, 10.
 — “Nature,” Nos. 559–575.
 — “Athenæum,” Parts 631–634.
 — Revue Scientifique, Tom. XIX, Nos. 1–19.
 — The American Antiquarian, Vol. II, No. 4.
 — Correspondenz-Blatt, August, 1880.
 — Revue d’Anthropologie, Nos. 3, 4.
 — Matériaux pour l’histoire de l’homme. Tom. XI, liv. 6e. 7e.
 — General Catalogue of Books. Edited by Bernard Quaritch.
 — The American Naturalist, Vol XIV, No. 10.
 — Rocky Mountain Medical Review, Vol. I, No. 1.

The election of CHARLES COOMBE TENNANT, Esq., was announced.

The following paper was read—

On ANTHROPOLOGICAL COLOUR PHENOMENA in BELGIUM and ELSEWHERE. By Dr. JOHN BEDDOE, F.R.S.

WITHIN the last few years the numerical method has been applied pretty extensively to the determination of ethnological colour types in several countries of Western Europe.

In Britain the Anthropometric Committee is continuing its labours, and has already acquired a considerable mass of facts respecting colours, from a number of private and some official observers. But in this special department continental Anthropologists, though they started behind us, have been enabled by their school organisations to outstrip us completely. In Germany, Vichow has been able to get counted and tabulated, quoad their hair and eyes, the whole school population of suitable age. The only local exception is the city of Hamburg,

which has always borne a Philistine reputation as regards matters of science. In Switzerland, Dr. Guillaume, of Neuchâtel, and others, have successfully stirred up the cantonal authorities and schoolmasters; and I believe the entire school population has been reported on except in Geneva and Tessin, whence returns have not come in. In Belgium, Professor Vanderkindere moved the Geographical Society, at whose instigation the Minister of the Interior enabled him to obtain from the schoolmasters of the whole country the particulars required. And I believe that a similar enquiry has been projected, or actually undertaken, in Holland and in Bohemia.

The drawbacks for the value of information thus obtained are, of course, numerous. They are due partly to faults in the method and the observers, partly to the nature of the material. The classification of the colours is very difficult. Broca's plan is the best, but is too complicated for large numbers and unscientific observers. Moreover, it does not strictly apply to the mixed varieties of eye-colour, which are pretty frequent. Still, this is a small defect, and the illustrious author of the arrangement had foreseen it, and in some degree provided for it. The determination of colour of hair is more difficult. They run into each other by infinite gradation, they vary with the changes of illumination, and finally they are not flat tints, and the colour-standards of Broca and General Pitt-Rivers, excellent for the skin, are by their flatness incapable of being identified with the hues of hair. It is my opinion, and I think that Mr. Brabrook and General Pitt-Rivers agree with me, that flat tints, striped with minute dark lines, might be adopted as standards, but hitherto I have not succeeded in bringing this plan to bear.

The personal equation of the observer has also to be considered. It varies exceedingly, and can, to some extent, be predicted. Thus a person who has been brought up among a xanthous population, is apt to be inclined to apply the name black to dark shades of brown, and one belonging to a melanochroic district will call the chestnuts "blonde" and the yellows "red." In this way local differences are likely to be underestimated, and I am disposed to think that they have been so in Belgium and in Germany.

The material utilised consists of school children. Undoubtedly the hair gradually darkens from infancy up to adult age in the immense majority of persons; but it does so with such uniformity that provided we always compare children with children and adults with adults, there is little fear of serious error. Dr. Guillaume has given us a valuable comparison of the colours in the school children and in the conscripts of Neuchâtel. Hair called "black" is several times more frequent in

the latter than in the former. Sexual differences exist; thus brown eyes are more common among women and grey eyes among men; at least this is the case in England, and, I think, everywhere else; but if all the children of both sexes are examined, this becomes quite immaterial.

It is a question whether it is better to combine the eyes and hair in a single observation, making such categories as, *e.g.*, light eyes with dark hair, dark eyes with red hair, and so forth, or to observe and tabulate the eyes and the hair separately. The latter plan is much more simple and easy, and likely to be more accurately worked, and some have accordingly adopted it. I myself have always adopted the former plan, because it yields some information which in the simpler one slips through one's fingers. Virchow and the Swiss have also adhered to it (the former), but Virchow has, I think, needlessly complicated it by asking in some cases for the colour of the skin also. Thus he has a category of "brown eyes, brown hair, fair skin," and another of "brown eyes, brown hair, dark skin or complexion." I confess that I think the determination of the colour of the child's skin, washed or unwashed, is a matter of which the difficulty exceeds the importance. I have always made five colours of hair—red, fair, brown, dark, and black—and three colours, or, as my lamented friend Broca corrected me, *shades* of eyes; and thus I got fifteen categories, and provide for every possible combination. Virchow's plan has but twelve categories, but leaves a number of combinations unprovided for. He makes but four colours of hair—red, fair, brown, and black—and Vanderkindere follows him, with the result, I am sure, that the number of black-haired is enormously exaggerated. With this exception the plan of the latter is perfect; he rightly neglects the skin, and gets the particulars separately for each child, so as to be able to form twelve categories if he pleases. Though he has not published the figures for all of these, he has made a most useful selection, and based thereupon a series of instructive maps, showing the distribution of the blonde and brunette types in the several *arrondissements* and cantons of Belgium. Virchow and his coadjutors have also produced an excellent map, but I do not think the figures on which it is based have been published so fully and accessibly as by Vanderkindere. I do not think the Swiss statistics have been published at all; at least I have been unable to procure any of them except those of Dr. Guillaume for Neuchâtel.

I will now state briefly the results of these enquiries, so far as I am acquainted with them.

In Germany, speaking roughly, I may say that the blonde type prevails most decidedly in Schleswig-Holstein, and not much less so in the north-western and north-eastern provinces;

and that it gradually yields to the brunette as one proceeds southwards and south-westwards, the brown maximum being attained in parts of Alsace-Lorraine and Bavaria. The most considerable anomaly is the comparative prevalence of the brown type in the Thuringian region. I confess to having been somewhat surprised at the little difference that exists between the partly Frisian or Danish provinces about the Lower Elbe, and the semi-Slavonic regions of Prussia and Saxony. I should have thought the latter less blonde than they appear to be, and my own impression is a little strengthened by another valuable series of observations, to which I have not hitherto alluded, because they were not conducted on the same large official scale and by the same machinery. I mean those of Professors Joseph Majer and Kopernicki, of Cracow, on the population of Galicia, whose admirable work is not so much known as it deserves to be, because written in Polish. It is, of course, however, likely enough that the Wends of the north-west, the Obotrites, Lusatians, &c., may have been, and may remain, a fairer race than their neighbours and kindred the Poles and Ruthenians. The dark complexion and un-Germanic aspect of many of the inhabitants of Thuringia I have myself observed and commented on long ago; thus Rühlra is noted for a dark type of female beauty.

Of the Swiss results I have, as already said, seen very little. Those for the northern border appear to be unconformable with the German ones for the same frontier, but this I am disposed to attribute to different ideas of the nomenclature of colours. It would seem that here, too, the blond type is strongest in the north, as in Aargau, and that the brown one acquires strength as one proceeds southwards, south-westwards, and south-eastwards, into Glarus, Graubundten, the Valais, and Vaud.

The facts yielded by the Belgian returns are, as I have said, particularly interesting, and are very clearly set forth in a monograph by Professor Vanderkindere. Belgium, we know, is pretty equally divided as to language by a line running nearly due east and west, into the Walloon and the Flemish or Brabanto-Flemish regions. The former includes the whole, or nearly so, of Hainault, Namur, Belgium, Luxembourg, and Liege, the latter East and West Flanders, Antwerp, Limburg, and the greater part of Brabant. The Walloon, or French-speaking division, contains twelve arrondissements, the Flemish-speaking one, fourteen. If now we divide the whole number of the observed into three types, the blonde, the brown, and the neutral, or intermediate or mixed, we find that the fourteen arrondissements having the largest proportion of blondes correspond with the fourteen Flemish ones; and the twelve having most browns

with the twelve Walloon arrondissements; while Verviers, which is the only one of the twelve which includes a considerable minority of Teutonic speech, stands, as it ought to do, fifteenth on the blonde and twelfth on the brown list. When we come to the minuter subdivisions called cantons, the contrast continues almost as striking. There are 203 cantons, of which more than half are wholly Flemish, a few are of mixed language, and the remainder Walloon. Excluding the mixed cantons and those which actually touch the linguistic frontier, I find that when they are all arranged (which Vanderkindere has done) numerically in the order of prevalence of the blonde type, only ten of the Flemish cantons go beyond the hundredth place, and only three of the Walloon ones fall below the hundredth. Vanderkindere remarks the rather large proportion of dark hair in Ostend and the neighbouring maritime cantons of West Flanders, and thinks it may be due to the aboriginal piscivorous population having settled there and never been extirpated.

The figures do not help us much towards considering the question whether city life has any influence in altering physical characteristics. Most of the urban cantons have a large rural element. Those most available are Brussels, Mechlin, Verviers, Lessines, and, less certainly, Ostend, the two of Antwerp, the two of Liege, and the two of Ghent. Of these, Ghent and Ostend are decidedly, and Antwerp and Verviers less decidedly, darker than they should be—darker, that is, than the average of the surrounding cantons, while Brussels, Mechlin, and less distinctly Liege and Lessines, are fairer than might be expected. The western canton of Ghent is remarkably dark, but this may be due to the influx of foreign artisans into this great manufacturing town.

The Flemish country is flat or gently undulating, sandy or loamy; the Walloon country, for the most part, rough, hilly, and well-wooded, the soil resting on carboniferous limestone, coal measures, &c. But that these facts have little or nothing to do with the colour of the hair and eyes of the population is shown by the position of Hainault, which, resembling Brabant in surface and soil but inhabited by Walloons, shows a larger proportion of dark-haired children than any other province.

On the whole, this work of Professor Vanderkindere's supplies some of the most powerful evidence we have for the permanence or, to speak more cautiously and accurately, for the longevity of even such apparently trivial and variable physical characters as the colour of the hair and eyes. By its publication the arguments for undertaking a similar investigation in the primary schools of the British Isles have been greatly strengthened. I have kept in view the desirability of

procuring such a series of facts for the last five-and-twenty years; but the task transcends the powers and leisure of a single individual, or even of such a body as the Anthropometric Committee. If the thing is to be done on a scale, and with a completeness comparable with that obtained in Belgium, it must be with a certain amount of official help and countenance. These are much more difficult to obtain in Britain than in Belgium; but with the assistance of the British Association we need not despair of securing them before the landmarks of British ethnology have been utterly blurred by migration and counter-migration.

DISCUSSION.

MR. C. ROBERTS: As the rate of pigmentation is more rapid in the eyes than in the hair, I think it is desirable that the observations made on each organ should be made separately, and afterwards combined, or rather compared together. The darkening of the hair goes on slowly from birth to age of puberty, when it often takes a sudden leap corresponding with the other marked physiological changes which occur at that period. With the eyes it is quite otherwise. At birth the iris is quite colourless, the dark blue, and, indeed, all the shades of blue at a later period of life, being due to the black inner pigment showing through the semi-transparent iris; but the dark outer pigment which distinguishes the brown and black eye is deposited on the surface of the iris during the course of the first two or three years, and it changes little afterwards. The consequence is that we often see young children with dark eyes and fair hair, which are difficult to classify. Judging by the hair they are blondes, by the eyes brunettes, and they will most develop later in life all the characters of the darker element of our population. For the same reason I think little useful anthropological knowledge will be gained by making observations on a large number of children of different ages, as the result will depend on the colour of the hair and eyes of the predominant age, and this in its turn will depend on the kind of schools and other circumstances under which the observations are made.* If the children were arranged in groups of two, or at most of three years, they could be compared together, and the order of pigmentation could be determined. Unless analysed in this manner, I should have little confidence in the statistics which are reported from the Continent, and referred to by Dr. Beddoe, in determining the racial elements of the people.

MR. LEWIS agreed with the previous speaker in hoping that statistics of hair and eyes would be so drawn up as to show not merely the total quantity of dark or light hair and eyes among a

* NOTE by DR. BEDDOE.—The limits of age, and the predominant ages, would be the same throughout the kingdom in the primary schools. Thus objection is therefore, I think, invalid.

number of persons, but to distinguish between those who had dark hair and eyes, light hair and eyes, light hair and dark eyes, and dark hair and light eyes. He had no doubt that there was a distinct type the representative of a race of people in this country having dark hair and light eyes: some ethnologists believed in two races only, one light haired and light eyed, and the other dark haired and dark eyed, of which all other varieties were mere mixtures, but he was satisfied that, if a sufficient number of statistics distinguishing those varieties could be collected throughout the country, the existence of a third type would be clearly demonstrated.

The PRESIDENT, Major-General PITT-RIVERS, Mr. BOUVERIE PUSEY, and Mr. BRABROOK also took part in the discussion.

The following paper was read by the author:—

CERTAIN REASONS *for believing that the ART of MUSIC in PRE-HISTORIC TIMES passed through THREE DISTINCT STAGES of DEVELOPMENT, each characterized by the invention of a NEW FORM of INSTRUMENT, and that these stages invariably succeeded one another in the same order in various parts of the world.* By Mr. ROWBOTHAM.

MUSICAL instruments, though their varieties may be counted by hundreds, are yet really reducible under three distinct types:—1, the drum type; 2, the pipe type; 3, the lyre type. Under the first head fall drums, rattles, tambourines, gongs, triangles, castanets—in a word, all instruments of percussion. Under the second head fall flutes, horns, trumpets, fifes, hautboys, bugles—all wind instruments. And under the third head fall all stringed instruments, comprising the harp, lyre, lute, violin, dulcimer, piano, &c., &c. Now these three types are representative of three distinct stages of development through which prehistoric music has passed—and the stages occur in the order named. That is to say, the first stage in the development of instrumental music was the drum stage, in which drums and drums alone were used by man.¹ The second stage was the pipe stage, in which pipes as well as drums were used. The third stage was the lyre stage, in which lyres were added to the stock. And as in the geological history of the globe, the chalk is never found below the oolite nor the oolite

¹ Understand by "drum," instruments of percussion, from the rudest possible form of two pieces of stick beaten together, for instance, to the developed drum or rattle as we have it to-day.

below the coal, so in the musical history of mankind is the lyre stage never found to precede the pipe stage, nor the pipe stage to precede the drum stage.

That this should be the order of development seems natural, since it corresponds to the constitution of the factors of which instrumental music is composed—rhythm, melody, and harmony. Rhythm is the most elementary,—now the instrument of rhythm is the drum. Melody is an advance on rhythm, and was given by the pipe; while harmony, which is the most advanced of all, was ushered in by the lyre.¹

And not only to their constitution but to their chronology, as a glance at what is going on around us will reveal. For in the development of the musical sense first comes the appreciation of rhythm, of melody next, of harmony last—first, the power to beat time with the foot to a tune in a concert room; next, the power to appreciate the melody independent of its rhythm; lastly the comprehension and appreciation of the harmony. So in pianoforte playing, first *time*, then the right hand, which takes the melody, then the left hand which gives the harmony. Thus also in the history of modern music, an era of rhythm came first under Bach; an era of melody next under Haydn and Mozart; Beethoven bridges over the transition to the era of harmony which has attained its climax under Wagner and Liszt.

There is another reason why drum, pipe, and lyre should have been the order of the stages in prehistoric time—I allude to the evidence furnished by the mechanical complexity of the instruments themselves. The drum is evidently the simplest of all; the pipe is more complex than the drum; but the lyre, which consists of strings stretched on pegs is the most complex of all.

In keeping with this is the fact that savages sometimes have the drum alone, but never the pipe alone or the lyre alone; for if they have the pipe, they always have the drum too; and if they have the lyre, they always have both pipe and drum.

Meeting at the bottom of the ladder with the Veddahs of Ceylon,² the Mincopies of the Andamans,³ and the inhabitants of Tierra del Fuego⁴ who have no musical instruments at all, we find the drum to be the only musical instrument known

¹ In speaking of the "harmony" of prehistoric music, I am merely using the word in the sense of the Greek *ἀρμονία*, which, though very different from what we understand by "harmony," was, nevertheless, the undoubted embryo from which modern harmony grew.

² Tennent's "History of Ceylon."

³ Mowat's "Andaman Islands."

⁴ "Narrative of the Surveying Voyage of H.M.Ss. 'Adventure' and 'Beagle.'"

among the Australians¹ (with whom it appears in its most rudimentary form), the Esquimaux,² and the Behring's nations generally,³ the Samoyedes, and the other Siberian tribes,⁴ and, until a comparatively recent date, the Laplanders.⁵

With the Polynesian Malays⁶ and the Papuans,⁷ the pipe makes its appearance, while in no single instance is the drum found wanting. The same holds good of the South American Indians. Both pipe and drum are in use among the tribes on the Upper Amazon,⁸ the Indians of the Rio Negro⁹ and the Uaupés,¹⁰ the Tupís,¹¹ the Omaguas,¹² and neighbouring tribes,¹³ the Artaneses¹⁴ and Yucunas,¹⁵ the Itatines,¹⁶ and generally the rest of the Brazilian tribes,¹⁷ the aborigines of Guiana,¹⁸ the

¹ Eyre's "Discoveries in Central Australia," II. pp. 228, 237; Grey's "Journal of Two Expeditions of Discovery in N.W. and W. Australia," II, p. 305.

² Parry's "Second Voyage," p. 530; Crantz's "History of Greenland," I, p. 176.

³ Whymper's "Alaska," p. 143.

⁴ Richardson's "Polar Regions," p. 335; Smith's "Wonders of Nature and Art," London, 1803, II, IV, pp. 277, 264, etc.

⁵ That is to say, till within about 300 years ago. See Scheffer's "History of Lapland."

⁶ For the Society Islands, see "Captain Cook's Voyages." Published by John Tallis, I. p. 87. For the Navigator Isles, Turner: "Nineteen Years in Polynesia," p. 211. For the Friendly Isles, "Cook," I, p. 427, and in the common edition, 1st Voyage, p. 397; see also Mariner's "Tonga Islands," II, 214, 218. For the Marquesas, Melville's "Life in the Marquesas," p. 185. For the Sandwich Islands, where, however, the pipe is absent, "Cook," II, 250. And for the Maories of New Zealand, "Captain Cook," I, 196, who, in addition to the pipe and drum have also the lyre: Dumout d'Urville's "Voyage de l'Astrolabe II," 446.

⁷ For the Papuans, see Williams' "Fiji and the Fijians," I, 163; Turner's "Nineteen Years in Polynesia," p. 90; Jukes' "Voyage of H.M.S. 'Fly' (for the Erroob Papuans), II, 176; for the Papuans of New Guinea, I, 274, and plate I, 277. Cf. Rosenberg's "Reistochten naar de Geelvinkbaai of Nieuw Guinea," Amsterdam, 1870, p. 93; and for the drum form in the Papuan Archipelago, Schouten's "Voyage in Purchas: His Pilgrimes," I, 2, 100.

⁸ Bates' "Amazons," II, 201; Wallace's "Travels on the Amazon," 504.

⁹ Wallace, "Travels on the Amazon," 259.

¹⁰ *Ibid.*, 282.

¹¹ Bates' "Amazons," I, 311.

¹² Southey's "History of Brazil," I, 89, 90.

¹³ *Ibid.*, 84, 95. Orellana, in his narrative of his expedition down the Marañon, speaks of one of the tribes having "*three-stringed rebecks*;" but such a statement, coming from such an authority, is, in presence of overwhelming evidence to the contrary, comparatively worthless. Herrera gives cogent reasons for suspecting the truth of Orellana's narrative in many of its details, and, indeed, no one can read it without being aware of innumerable bouncers. But even should the statements prove true, it does not militate against our theory for an instant, for in the same sentence he speaks of the same tribe having also pipes and drums.

¹⁴ Southey's "Brazil," I, 139.

¹⁵ *Ibid.*, III, 720.

¹⁶ *Ibid.*, I, 341.

¹⁷ *Ibid.*, I, 206, which bears out Bates' general remark about the Tupís.

¹⁸ Brett's "Indian Tribes of Guiana, 320, 154 (plate).

Aymara Indians of Bolivia and Peru,¹ the Huacho Indians of Peru,² the Abipones of Paraguay,³ and the Patagonians.⁴ These are all the cases I have examined in South America, and they all yield the same result—that is to say, the pipe is nowhere to be found without the drum being likewise present.⁵ And what is true of the South American Indians is equally true of the North American Indians.⁶

But where the lyre appears, there both pipe and drum are also found as its never failing complement, as with the Dyaks of Borneo,⁷ the Khonds of Khondistan,⁸ the Maories of New Zealand,⁹ the Finns¹⁰, the Tartars,¹¹ the Cossacks,¹² the Turkomans,¹³ the Hindus,¹⁴ and the nations of history.¹⁵

These facts would seem to do much towards confirming the

¹ Forbes, 'On the Aymara Indians of Bolivia and Peru,' in "Transactions of the Ethnological Society," 1869. p. 233.

² Stevenson's "Travels in South America," I, 403.

³ Dobrzhoffer's "History of the Abipones," II, 70, 209, 217.

⁴ "Narrative of the Surveying Voyage of H.M.Ss. 'Adventure' and 'Beagle,' II, p. 162; R. Brown's "Races of Mankind" plate; Masters' "At Home among the Patagonians," p. 77.

⁵ But see *infra*.

⁶ Catlin's "North American Indians," I, 238, 243; Schoolcraft, II, 514; III, 486. Catlin even speaks about "lutes" being found among them, but, provokingly enough, though he mentions "lutes" twice in his book (I, 142; and I, 88); he goes into no details, nor even gives a description in the place where he deals with the other instruments—on the contrary, omits them entirely from his list. But to this existence of "lutes" among the North American Tribes, Schoolcraft says, No; and on all counts, Schoolcraft's seems the probable view. For, by the way, Catlin talks of "lutes" *ἔμοιγε ἰσκέει ὁ κατ'λινος ὄνκ ἀκριβῶς διαγιγνώσκων τὸ λυτὶ τί ἐν τῷ ὄντι ὕψισται*. Speaking with great reserve on so delicate a question, I refrain from even hinting my opinion in plain English.

⁷ Marryat's "Borneo and the Indian Archipelago," pp. 84, 133 (plate). St. John's "Life in the Forest of the Far East," I, 118.

⁸ Campbell's "Narrative of Thirteen Years' Service among the Wild Tribes of Khondistan," pp. 16, 164.

⁹ *Supra*.

¹⁰ Pinkerton, I, 473.

¹¹ Mary Holderness' "Notes relating to the Manners and Customs of the Crim Tartars;" Clark's "Travels in Russia, Tartary, and Turkey," 316; "New Edinburgh Review," 1822, p. 518.

¹² Atkinson's "Travels on the Upper and Lower Amoor," p. 167.

¹³ Chodzko's "Popular Poetry of Persia," pp. 62, 419.

¹⁴ "New Edinburgh Review," 1822, p. 525.

¹⁵ Pursuing the enquiry among those semi-civilised nations which meet us on the threshold of history, such as the Celts, for instance, it is only to find that what is true of others is likewise true of them. For the three forms among the Celts, see Jones' "Welsh Bards," folio, p. 90; in Ancient Scotland, *ibid.*, 75, Buchanan's "History of Scotland," Lib. I; in Ireland, Jones, *ibid.*, and "Transactions of the Royal Irish Society," VIII, "Antiquities," p. 11 (which proves that the pipe-form was known). Africa, which is the bugbear of theorists, offers some slight difficulty, from the fact that among some few of the tribes the drum and lyre are found alone, the pipe being wanting. It will be observed that I have made no mention of Africa in the above, as I intend in some subsequent contribution to endeavour to prove that the lyre was passed down into Africa from Egypt while the majority of the tribes were yet in the drum stage.

opinion that the drum is the oldest, the pipe the next, and the lyre the youngest of the three. But there is another reason why we should adopt a chronology which assigns the seniority to the drum. Archaic types are preserved in the amber of religion. The vestments of the clergy gives us valuable aid in studying the antiquities of costume, and what we may call

The Evidence of Ritual

Is of equal value in studying the antiquities of music. And as far as I have been able to gather, the instrument of ritual among savage nations is invariably the drum. Throughout Africa where both pipe and lyre are known, if an instrument is employed at all in the fetish ceremonies it is invariably the drum. The fetish ceremony among the Camma negroes, which Du Chaillu mentions is a case in point, and other instances of the use occur in his book.¹ Throughout the South Sea Islands the drum is the instrument of the priests.² Catlin mentions it as appropriated to religious ceremony among the Assineboins,³ Mandans,⁴ Crows,⁵ and Sioux,⁶ and Schoolcraft mentions its use among the Mediwin, who pervade the whole body of the tribes from the Atlantic to the Pacific, and from the Gulf of Mexico to the Arctic Ocean.⁷ It is the instrument of the priests in Guiana,⁸ and forms an essential element in the ritual of the Patagonian wizards;⁹ similarly used among the Abipones,¹⁰ and other South American tribes, particularly the Guaycurus,¹¹ and not to mention its use in ritual among the Peruvians and Mexicans, a glance at ancient history will remind us of the sistrum of the Egyptian priests, and the cymbals of the Assyrian and Hebrew priests; and coming down to a later date, we shall find the case precisely the same. With the Greeks, for instance, the drum, in its various forms of drum, tambourine, cymbal, and rattle, was regularly employed at the Cotytia and Bendideia of the Thracians,¹² the Orphic rites,¹³ and by the Corybantes, Cabeiri, Idcean Dactyli, and Curetes at the rites of Cybele, and

¹ Du Chaillu, p. 241, etc.

² Ellis' "Polynesian Researches," I. 282.

³ Catlin's "North American Indians," I. 55.

⁴ *Ibid.*, 126.

⁵ *Ibid.*, 159.

⁶ *Ibid.*, 238.

⁷ Schoolcraft, I. 360.

⁸ Purchas: His Pilgrimes. IV, 1274.

⁹ "Surveying Voyage of H.M.Ss. 'Adventure' and 'Beagle,'" II, 262.

¹⁰ Dohizhoffer, II. 65, 84, 278-9.

¹¹ Southey's "Brazil," I, 121.

¹² Strabo. X, ii, 16.

¹³ *Ibid.*

the Idæan Zeus,¹ and at the rites of Dionysus,² —and that metal drum which we suspend in our own churches, and which we call a bell, may be taken in to swell the list.³

The next species of evidence which I shall bring forward, is

The Evidence of Mythology.

The legends of savages, as far as I have been able to gather any, all testify to the high antiquity of the drum. But the mythology of civilised peoples is a far more fertile field for the present subject, and gives many valuable hints about the *succession* of the stages. And it is singularly confirmatory of our theory, that whenever a definite sequence is alluded to in legend, or can be gathered from it by the comparative method, the lyre is always made to follow the pipe, and the pipe to follow the drum. Minerva invented the flute, but afterwards threw it away, because it distorted her features, and took to the lyre instead. When Apollo received the lyre from Mercury, he praised the wonderful sound which neither gods nor men had heard before, "*for up till then he had been contented with the amorous sighing of the flute.*"⁴ The struggle between the two instruments for supremacy is adumbrated in the legends of Apollo and Marsyas, and Apollo and Pan, and it is in keeping with our theory, that in both cases the contest ended in the victory of the lyre over the superannuated pipe, Marsyas being flayed for his impertinence, and Midas being but an ass for awarding the palm to Pan.⁵ But long before Athena's flute or Apollo's lyre was heard, music had come into being with the cymbals of the Curetes, says the

¹ Strabo, X, iii, 7, 11.

² Plutarch "De Iside," LXIX, p. 378.

³ An examination of legal formularies, which are also, like religious ceremonies, a repository of the old, would no doubt yield a similar result. Thus, Thornton tells us in his "History of China," that the phrase "Keih-yuen," by which the officers call attention in the Chinese law courts, means literally "strike the drum." Throughout Africa scarcely any legal formulary exists without drum-beating forming a special clause in it. At the paying of the hongo, or tribute, the drums beat the "satisfaction," e.g., at M'ganga (Speke's "Source of the Nile," p. 121) and at Uzinza (*Ibid.*, 126), &c., &c. A performance with drums and drumsticks formed part of an old ceremony of swearing fealty at Karague (*Ibid.*, 224). But I have neither looked much into this species of evidence, nor do I attach much value to it.

⁴ "θανασίην γὰρ τήνδε νείρατον ὕσαν ἀκούω
ἦν οὐ πάποτε φημι εἰσήμεναι ὅντε τίς ἀνθρώπων
οὔτε τίς ἄθανάτων, οἱ Ὀλύμπια δώματ' ἔχουσιν.

καὶ γὰρ, ἐγὼν Μοῦσῃσιν Ὀλύμπιάεσσιν ὀπηδός,
τῇσι χάρος τε μέλουσι καὶ ἱμερόεις βρόμος ἀνθρώπων."

Hymn to Mercury, 113.

⁵ "Calamis agre-tibus insonat ille.

Barbaricoque Midan—dolenit carmine."—Met. XI, 162, seq.

legend in Herodotus,¹ and from these simple elements all Greek music, it avers, was subsequently derived. This is a plain enough suggestion that the drum was the oldest form, and the idea is kept up in the story in Floridus Sabinus, which makes the first music ever heard in the world to have been the music of the anvil. The passage in the *Bacchæ* of Euripides, which alludes to the legendary origin of the drum and pipe, will, I think, be allowed, without much pressing, to concede the seniority to the former.²

The legends of Egypt tell the same tale as those of Greece. Osiris invented the flute and Isis the sistrum; but it was the Egyptian Hermes or Thoth, a deity of later date than either of them, who was credited with the invention of the lyre.³ And Indian legend keeps up the order of succession. Vishnu was the inventor of the trumpet, and in his avatar as Krishna of the flute; but it was Nareda, the son of Brahma, who belongs to the second generation of gods, that first invented the lyre.⁴

Droppings Out.

This is a thing which sometimes happens, that one of the forms drops out of use. Thus we have evidence of the existence of the drum in Lapland from time immemorial; and we know for a fact that drums were used there as late as the year 1600.⁵ Yet by 1732 the drum had died out so completely that Linnaeus, who travelled through Lapland in that year, could write, "The Laplanders know no musical instrument except the lur (a sort of trumpet), and pipes made of the bark of the quicken tree or mountain ash."⁶ The Muras of the Amazon have at the present day no instrument but the horn;⁷ but the fact that they are a Tupí tribe, and that all the Tupís have the drum, seems to prove that this solitary exception is a case where the drum, from some cause or other, has dropped out of use. The same method of reasoning may be applied to the Caishánas, who at the present day have no instrument but the pipe.⁸ Only 400 in number, they are an insignificant branch of the Shumanas, who, along with the Passés, Jurís, Mauhés, and Tucúnas, form a network of intimately connected tribes. Now all these tribes have the drum. It is, therefore, highly probable that the Caishanas at one time had it too. In the same way, in the teeth of the fact that both drum and pipe were known to the Celts, we find both

¹ I cannot find the passage in Herodotus, but my authority for the quotation is Dr. Burney, I, 261.

² *Bacchæ*, 125.

³ Burney, I, 194, 201, cf. 202.

⁴ Coleman's "Mythology of the Hindus," pp. 7, 15, pl. 12, fig. 2.

⁵ Scheffer's "History of Lapland," p. 58.

⁶ Linnaeus' "Tour in Lapland," II, 51.

⁷ Bates' "Amazons," II, 10.

⁸ *Ibid.*, 376.

instruments to have dropped out completely in Iceland (which was colonised by Celtic Christians from Ireland, in the year 795), and the only form known there 300 years ago to be the lyre.¹

It will be noticed that if a dropping out occurs, it is always the drum which drops out in presence of the pipe, and the pipe and drum in presence of the lyre. And since there is no instance of the pipe giving place to the drum, or the lyre giving place to either of them, it seems highly probable that the drum stage, the pipe stage, and the lyre stage, were three *progressive* stages of musical development.

The embryology of the art ends with the evolution or introduction of the three forms of instrument; but in order to discover what laws governed the development of the embryo, we may be allowed to avail ourselves of any hints which the history of the full-fledged art has to offer, and when we bear in mind that the strolling pipers had spread all over medieval Europe long before the strolling fiddler was heard of,² and that the drummers and trumpeters formed respectable and influential guilds before the time of either;³ that the history of the modern orchestra has proceeded on the same principle—regular orchestras in the sixteenth century consisting of 12 wind and percussion instruments to 2 strings;⁴ in the seventeenth century, of 25 wind and percussion to 19 strings;⁵ but by the time of Beethoven, of only 14 wind and percussion to 47 strings; that the history of the composite instruments tells the same tale, the organ, the composite pipe, coming first, attaining its full maturity, and being on the high-road to decline before the piano, the composite string, had well commenced its existence." I think these hints, conjoined with the bearings of the facts mentioned before, will go to confirm our original position as to the order of the three stages in the development of pre-historic music—the drum stage, the pipe stage, and the lyre stage—which, it seems to me, are to the historian of music what the stone, bronze, and iron ages are to the archaeologist. And though it is to the

¹ Von Troil's "Letters on Iceland" in Pinkerton. I, 652.

² Köstlin's "Geschichte der Musik," I. ii. 2. §3; Becker's "Hausmusik in Deutschland," p. 18.

³ Reissmann's "Geschichte der Musik," II, 8; Becker, *ibid.*

⁴ Brendel's "Geschichte der Musik," 77.

⁵ *Ibid.*

⁶ The organ began its development in the Dark Ages, and reached its maturity about the beginning of the eighteenth century, since the middle of which it has rapidly declined. The harpsichord and virginal, in their very rudest form, cannot be put back earlier than the middle, or, at the utmost, the beginning of the sixteenth century. Nothing was done on the harpsichord till the time of young Scarlatti and old Bach, that is, till the beginning of the eighteenth century. The piano, as is known, was not till later.

history of music that they are chiefly valuable, they are by no means without import in the spheres of archaeology and ethnology. And what that import particularly is it will be my business in some future contribution to attempt to show.

DISCUSSION.

The PRESIDENT supported in a general way the author's view that the succession of musical instruments has been—1, drum class; 2, pipe class; 3, harp class. He presumed that Mr. Rowbotham, in speaking of harmony in connection with the lyre, meant the word in its ancient sense, not as what we now call harmony in part-music or accompaniment. He thought exception might be taken as to the way the absence of an instrument was argued on, so as to prove a case either way. On the one hand the absence of pipe and lyre in a tribe having drums was construed to mean that the tribe had never got beyond the drum. But, on the other hand, with a more civilised people having the lyre and no pipe, it was argued that they had had the pipe, but given it up.

Mr. C. ROBERTS remarked that having travelled among the red races of the far west of Canada, and the native races of Queensland and New South Wales, he had learnt to associate in his mind the sound of the drum with darkness and night; and he had observed that many of the Asiatic races, especially in India, make the night hideous with their drums, while they seem to make little use of them by day. He was inclined to think, therefore, that the drum was originally used for the purpose of signalling, and that it was afterwards developed into a musical instrument.

Mr. ROWBOTHAM, in reply, stated that he had purposely avoided entering into the question of the construction or origin of the instruments. He might, however, be allowed to remark, in illustration of one or two allusions made by one of the speakers to superstitions connected with the drum, that he had lately advanced the theory (in the "Contemporary Review" for October) that instrumental music originated as a form of fetishism, its secularisation into an art, as we understand it now, being a later phase in its development. Such a theory, though perhaps a little bold, had the advantage that it explained much that was otherwise inexplicable; for instance, the Maraca cult of the Brazilians, the drum fetishism of the Lapps, the superstitions clinging to the instrument all through the North and South American tribes, among the Esquimaux, the Samoyedes, and other Siberian tribes, which might, indeed, be traced in an unbroken line from Lapland, all along the north coast of Asia, crossing over at the Fox Islands into America, and descending through both continents to the bottom of Patagonia. The hypothesis of the drum, and therefore all instrumental music, having originated as a fetish, furnished a convenient explanation for much of this; and for the further fact that the drum, when used solo, is never used among savages as a musical instrument, *but always as a fetish*, or at the least

a quasi-fetish—its employment as a musical instrument being limited to its *applied* use as an accompaniment to the dance or song.

In reply to Mr. Roberts' suggestion that the drum originated as a signal, Mr. Rowbotham said that a complex system of drum signalling certainly existed throughout a pretty extensive area in the interior of Africa, which he believed Commander Cameron was the first to call attention to before the British Association in 1878; but it stopped there, and being limited to specific tribes on one particular continent was scarcely sufficient to warrant the general induction that the drum originated all the world over as a signal, if, indeed, it was correct to assume that, even in the signalling district, it so originated. Signalling looked much more like a practical afterthought than an original use, and certainly presupposed a much higher degree of intelligence than is attained by those tribes that are as yet in the drum stage. Besides Africa there was only one other instance of the signalling use that he knew of, and that was among the Yucunas of the Yapura.

In reply to some objections taken to the description of the lyre in his paper as "ushering in harmony," Mr. Rowbotham remarked that he used the word harmony in its simplest sense, understanding by it Aristotle's *ἁρμονία*, simple unison or octave between a voice and an instrument. Harmony is merely accompaniment, and was impossible in the pipe stage, for the pipe bound the mouth. But the lyre set it at liberty, and enabled the player to sing and play at the same time. Accompanying the voice by the drum was not melodic accompaniment, and need not be taken into consideration.

In conclusion, the author pointed out the bearings of the theory, if it were ultimately accepted, on the Cave Period. Whistles had been discovered in the caves, and if it were a necessity for the drum to precede the pipe, the cave men must have been acquainted with the drum.

A communication was read by the Assistant Secretary from Prince Paul Poutiatine, "On Neolithic Implements in Russia." An abstract will appear in the Miscellanea.

THE STONE AGE IN JAPAN; *with Notes on RECENT GEOLOGICAL CHANGES WHICH HAVE TAKEN PLACE.* By JOHN MILNE, F.G.S., &c., &c., of the Imperial College of Engineering, Yedo, Japan.

[Read 25th May, 1880]

PART I.

INTRODUCTION.

SINCE early times when Marco Polo journeyed across Central Asia and brought back news about the gold and pearls of a distant

country called "Chipangu" European interest in Japan has been continually growing greater.

Twenty years ago a lacquer box from Japan was a valuable "curio," and a note about the customs of its inhabitants a literary prize. Since then, although the period is so short, Japanese curios have been shipped to all quarters of the globe, and so many observers have been in the field transcribing books and noting customs, that now neither the productions, the customs, nor the history of Japan are sought after with the same eagerness as formerly.

Interest in that which is easily attainable seems to have reached a climax, and instead of being content with filling up the details of the sketch of historical Japan, enquirers are already in the field endeavouring to dispel the gloom which like a curtain hides that which is beyond the pale of written history, from the present in Japan, as it does in other countries.

As I have had unusual opportunities during my residence in Japan for travelling through the greater number of its provinces, my chief object in the following paper is to add the few gleanings about the archaeology of Japan which I have gathered together during these journeys to the mass of information which has already been collected about this interesting subject.

For the purpose of connecting together the notes and placing them before my readers so that it is possible for them to be reasoned upon, I will now and then supplement what I have to say with information drawn from museums, from Japanese books, and from notes in local newspapers.

Sources of Information.

Many facts relating to the early history of Japan are to be drawn from its *shell heaps* or "kitchen middens," of which in some portions of the country there seems to be no lack. As the Japanese fishermen of the present day also make shell heaps, in many cases it may be difficult to distinguish between those which are modern, and those which are really ancient.

Tumuli afford another source of information. These exist in many parts of the country, but thus far only a few of them have been explored.

Natural and artificial *caves* have yielded valuable evidence about the early inhabitants of Japan.

Besides evidence derived from sources such as these, a study of the language, the names of places, the types of people which are met with, their customs, religions, and traditions, the geographical positions of the several islands which form Japan, &c., all have an important bearing upon the early inhabitants of

this country, and form valuable material to sift for information.

*Kitchen Middens.**—These are scattered over the country in various parts. In the neighbourhood of Yedo there are many, and I have seen them in Hakodate, and as far north as the extreme north-east end of Yezo; that is to say, between latitudes 35° and 44° north, or a distance of 700 miles.†

These middens, so far as I have seen, are all very similar in character. First there is a layer of earth from a few inches to 1 or 2 feet in thickness; beneath this comes a band of shells, all of which have been opened, and many of which are broken. This is generally of a thickness varying between 6 inches and 3 or 4 feet.

The chief features in all these heaps are the shells; in fact, it is by the shells that they are gradually being discovered.

In the heaps I have found the following genera, all of which seem to be similar to the shells living in the neighbouring sea:—

- | | |
|-------------------------|----------------------|
| 1. <i>Mya Arenaria.</i> | 9. <i>Trochus.</i> |
| 2. <i>Cardium.</i> | 10. <i>Pecten.</i> |
| 3. <i>Nerita.</i> | 11. <i>Tellina.</i> |
| 4. <i>Ostrea.</i> | 12. <i>Pyrula.</i> |
| 5. <i>Arca.</i> | 13. <i>Artemis.</i> |
| 6. <i>Cerithium.</i> | 14. <i>Murex.</i> |
| 7. <i>Turbo.</i> | 15. <i>Cytherea.</i> |
| 8. <i>Buccinum.</i> | |

From the two first of these shells we can infer that the taste of the present Japanese and that of their predecessors was very similar.

Bones.—In addition to the shells, it is very common to find fragments of bones. So far as I have seen, these seem to have been chiefly broken transversely, and if I except the heaps at Omori and Suyeyoshi, it is only in a few cases that I have observed bones which have been split longitudinally, as if it had been the intention to extract marrow from them.

The bulk of the bones which I have obtained are those of deer, bear, birds, and fish.

Some of the tusks of boar are remarkable for their large size, that is, as compared with those of their modern repre-

* The only kitchen midden which has yet been described is, I believe, that discovered at Omori by Professor Morse (see "The Popular Science Monthly," January 1879, p. 257).

† Since writing the above I have been told by Mr. Lyman, who has been travelling in Kiushuu, that he there met with kitchen middens. Details of these I do not know. But this occurrence in Kiushuu indicates to us that we may expect to find kitchen middens throughout the whole of Japan.

sentatives. This diminution in size, it has been suggested, may be explained by supposing that in olden times these animals lived in the plains where good food might be easily obtained, whilst now through the advancement of civilisation, and the populating of the low fertile ground, they have been gradually forced back into the wilder and more mountainous regions, where life is altogether harder, and food more difficult to obtain.

The most singular discovery which has been made, is at the Omori shell-heap near Yedo by Prof. Morse, who there found a large number of human bones, all of which are broken in the same manner as the other bones. Amongst these there are fragments of the humerus, radius, ulna, lower jaw, and parietal bones.

Prof. Morse says: "Of 16 long bones of the arm and leg, 9 are destitute of both extremities, and of the remaining 7, 3 are destitute of the lower extremity, 2 of the upper extremity, and in 2 the articular surfaces of both ends are gone."

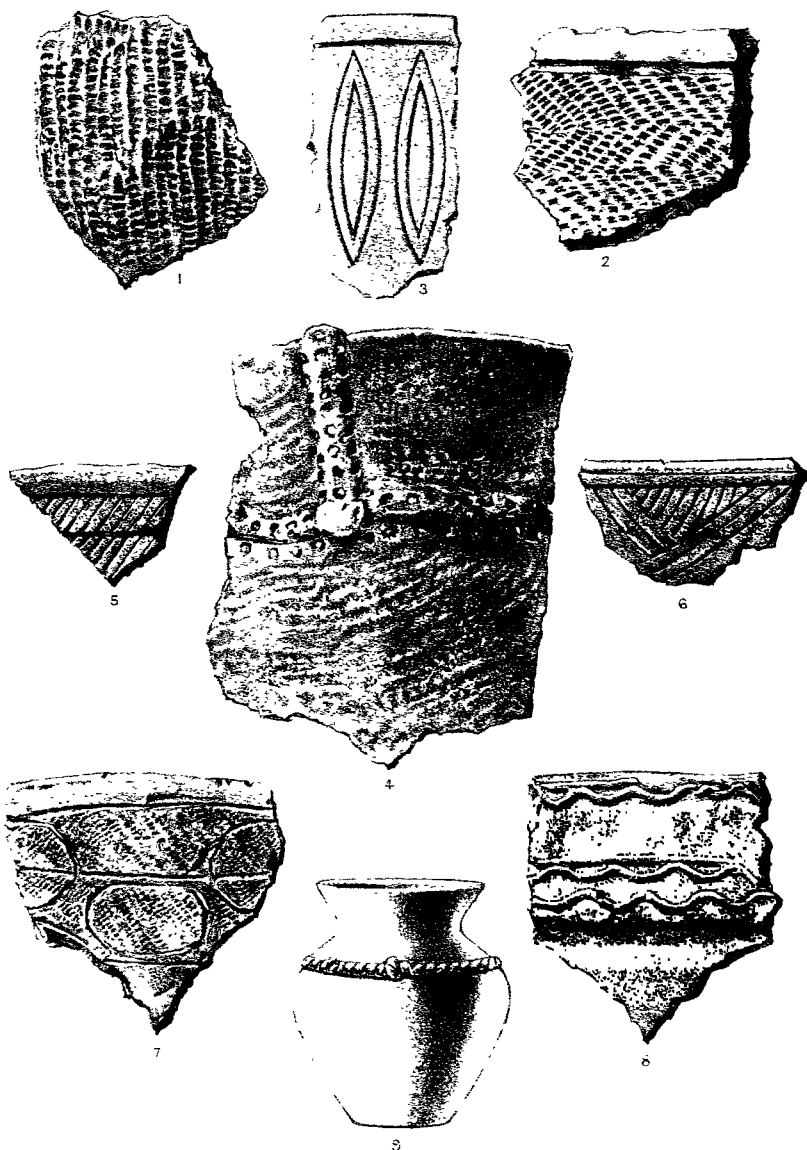
Only one tibia was found. Taking the antero-posterior diameter as 100, the transverse diameter is 62, and it "may be looked upon as a fair platycnemic tibia." (*Tokio Times*, January 18th, 1879.)

All these bones were mixed in an indiscriminate manner with the other remains. Finding bones in this way is regarded by Prof. Morse as being undoubted evidence of cannibalism.

Pottery.—In all these ancient middens, the feature most prominent, after the shells, is the abundance of fragments of pottery, all of which have apparently belonged to vessels of the vase type. At some of the heaps like that of Omori in a short afternoon you may collect a large basket full.* From the large quantity which are found at Omori, Prof. Morse is led to believe that in ancient times it may have been a famous place for its manufacture. In this belief I should hardly be inclined to join with Prof. Morse, partly because, as he himself says, that no unfinished specimens were found, and partly because at many other heaps, as, for instance, those near Yatsingashira, at Hakodate, fragments appear to be equally abundant. On the accompanying Plate XVII some typical forms of this pottery are shown.

As the nature of the patterns which are worked upon this pottery form such important evidence as to the people who made them, I will here state the few characters which appear to me to be the most observable.

* These fragments are unglazed and only partially baked. They vary in thickness from $\frac{1}{8}$ th to $\frac{1}{4}$ of an inch in thickness, and are very similar in their general character to the pottery obtained from other heaps.



ANCIENT POTTERY FROM JAPAN

Impressed Markings.—The greater number of pots are covered with minute irregular punctations. These are about one-eighth of an inch in length, and are ranged in lines (Fig. 1, Pl. XVII). Other punctations are irregularly oval in shape. These are not arranged in such continuous lines as the smaller markings. Usually they are about one-eighth of an inch long, but sometimes they reach half an inch. These little impressions at times give a hatched appearance to the surface of the pots. In some cases it would seem that they might have been formed by pressing the clay whilst in a soft state upon a coarse cloth. At other times when this hatching occupies a peculiar position, or is worked into a pattern, it would be suggested that a milling tool of some description has been used.

Besides punctated impressions which entirely cover the surface of a vessel and give to it a peculiar grain, larger punctations are put on in lines. These are evidently for the purpose of ornament. It is common to find them in single or double lines round the neck of a vessel. Sometimes they are roughly triangular, at other times they are either rectangular or circular.

In one specimen of pottery which I have, the impressions are deep and are arranged to form a pattern like Fig. 2. This piece has evidently formed the upper portion of a vase.

Incised Lines.—These are narrow lines which look as if they might have been made with a piece of stick or the edge of a sharp flint, whilst the clay was soft.

Often they run in lines round the neck of a vessel, sometimes singly and sometimes two or three together to form a series of parallel rings. At other times they are like irregularly formed deep scratches. Occasionally not only do they run round a vessel but they are arranged obliquely to each other to form a pattern, as, for instance, in Fig. 6.

The spaces between two such rings are occasionally filled in with diagonal lines (*see* Fig. 5).

A zigzag pattern made of scratches arranged in series which have different directions are common.

The general figure they produce is like Fig. 2.

Sometimes these incised lines form a series of vertically placed elliptical forms down the sides of vessels, each elliptical figure being formed of two, three, or more lines (Fig. 3).

Roughly drawn ellipses are also cut round the vessel, as in Fig. 7. Rough scrolls are now and then met with, and various other patterns are also to be found. Besides, straight wavy lines running down the sides of vessels are to be met with.

Markings in Relief.—Those markings which are in relief consist of small knobs, occasional scrolls, and what are called

cordmarks. These latter are so called from their resemblance to fine pieces of cord. From what I have collected they appear to be of two kinds, the simple cord and the twisted cord. These generally run in single or double lines round the neck or the upper part of vessels. Sometimes two are laid on like two pieces of string loosely twisted together. At other times they form wavy lines, and the straight cords and the waved cords may be arranged to form various patterns, as in Fig. 8.

Here and there along the twisted cord markings little excrescences stand up as if they were intended to indicate a knot. The rarest form of these markings appear to be the scrolls. Those which I have seen are arranged either in circular shapes, or else in forms like the letter S or the figure 8.

Out of all these various markings and their variations, the dotted impressions and roughly incised lines are the most common, and of the patterns those formed of series of parallel oblique lines like the zigzags.

I may mention that the cord-marked pottery appears to me to be more common in the Yezo heaps than in those near Yedo, and also that in all cases the markings are extremely irregular and indicate a carelessness in their production.

General form of Vessels.—Judging from the shape of the fragments of pottery which I have gathered together they seem all to have formed portions of vase-like vessels.

A complete vase which I had the good fortune to exhume when in Nemoro was shaped like Fig. 9. It is 130 mm. high, 85 mm. broad at the mouth, and 55 mm. broad at the base. It has a single cord mark round it, just below the neck.

From the Otaru heap a vase with two necks was dug up.

In some cases pieces of pottery have been perforated. These perforations are conical from two sides, indicating that a rhymer had been used first from one side and then from the other, very suggestive of holes which might have been bored with a flint flake. Amongst the many hundreds of fragments which I have collected, none of them show any trace of having been formed on a wheel, but from the irregularities, their shape, the finger marks, and the internal vertical scraping, they seem to have been moulded by hand.

Most of the vessels are of a dirty yellow colour, and do not show any signs of ever having been exposed to fire. Others are blackened as if by burning. This blackening in many specimens is only on the inner side, whilst the outer surface does not show any such indications.

From many rounded stones, some of which from their bleached appearance seem to have suffered from the action of fire, it would seem that we have indications of processes of cooking or



STONE IMPLEMENTS FROM JAPAN

The Field & Co., Lith. Co. N.Y.

of heating the contents of vessels, not by placing them on the fire, but by dropping heated stones into the interior. Whilst the blacked interior of the vessels would suggest that this method of cooking had been adopted, the thinness of the vessels would in many cases forbid the supposition that they had been subjected to such rough usage.

Stone Implements.

The weapons which have been used by the civilised inhabitants of almost every country have a striking resemblance, and in this respect Japan does not offer any exception. If we were to place the arrow-heads and stone chisels or axes found in Japan side by side with many of those which have been dug out in European countries it would be difficult to draw any marked distinction between them.

Comparing the roughly chipped implements with those which are more finely polished it would seem that two periods are indicated, a conclusion which is further strengthened by the fact that these two classes of implements are found in separate deposits.

Baron von Siebold tells me that from the result of his collections the more finely finished implements are more characteristic of the southern parts of Japan, whilst the coarser are found more in the north. Judging from the few implements which I have been fortunate enough to pick up myself, the reverse would appear to be the case. As illustrations I will mention the coarsely chipped celts I found near Macpherson Hill, Yokohama, and the coarsely chipped arrows or spear-heads found at Hakodate as compared with the delicately formed arrow tips which I gathered at Nimeru, in the extreme north-east of Yezo.

Taken as a whole, the arrow-heads found in Japan appear to me to be coarsely made, and specimens which could be regarded as having been carefully and finely chipped are comparatively very scarce.

Arrow-Heads.—The different forms of arrow-heads which I have observed are given in Pl. XVIII. Amongst these there are, first, the *simple points* (Fig. 1). Many of these I suspect are points which have been broken off larger arrows. Secondly, we have the *lancet form* (Fig 2). These are often so tapered that it must have been a matter of indifference as to which end should be chosen for the point. It is probable that this may have been intentional on the part of the maker, who intended that after one end had been damaged, instead of the head being useless, it might be inverted.

These merge through *lancet diamond* forms like Fig. 3, into the *diamond* shape shown in Fig. 4, which in turn merges into the triangular form with a single *tang* as shown in Fig. 5.

These five forms I regard as being variations of a single type which is characteristic of the north. My reason for so doing is because these shapes (in the specimens which I have collected in Yezo) form a graduating series; and although the form of Fig. 2 is vastly different from Fig. 5, yet between the two there are so many connecting forms that it is impossible to tell where to divide the series. Also I may add that at Nimero I dug up specimens representing the whole of this series lying side by side. The probability is that the explanation of the different shapes is that the maker followed the general form which he obtained from his first flake.

My reason for considering these forms characteristic of the north is because I have only found forms like these in the north, whilst the few specimens which I have gathered or seen from localities farther south are nearly all like those shown in Figs. 6 to 10.

These are of two types. 1st. Those with two barbs formed by the base being hollowed out to form a crescent-shaped opening. Sometimes the entrance to this opening is very wide, as in Fig. 7, whilst at other times, as in specimens from Sado, it is contracted (Fig. 9).

As I have not seen specimens of arrows with these two classes of openings from the same locality it is possible that they represent local varieties.

2nd. There are the varieties with the central tang and two barbs (Fig. 10).

Baron von Siebold tells me that he has found a third type of arrow. This has a rounded blunt top, and he thinks it probable that it may have been used for stunning animals, like the arrows which are used when hunting the sable in Kamschatka.

Of course it is possible that the different types which I have described represent different stages of advancement, but for my own part I should be inclined to think, as I have already expressed, that they represent local varieties, those with a hollow base being found more in the south whilst the others occur in the north.

In order to give some idea of the relative sizes of these arrow-heads and of the nature of the material from which they are formed and the localities where they occur, I give the following as samples from my collection. The length and breadth of the specimens are given by fractions; the numerator representing the length in millimetres and the denominator

the breadth. The shape is given by reference to the figures in the plate.

Yezo, Nemuro.—Types Figs. 1, 2, 3, 4, and 5; Fig. 1, $\frac{3}{8}$; Fig. 2, $\frac{3}{8}$; Fig. 4, $\frac{2}{4}$; Fig. 5, $\frac{1}{1}$.

Hard grey slate. Other specimens are of yellow or red jasper, whilst others are of obsidian. Similar types have been collected near Cape Yerima, near Otaru, and near Hakodate. The thickness of these is about 3mm.

Nipon, Owari, Kasugai-gori.—Types Fig. 7, $\frac{2}{5}$; Fig. 9, $\frac{2}{5}$. Material: chert, chalcedony, and agate. It will be seen that some of these are short and broad whilst others are long and thin.

Ise. Asakagori. Type Fig. 7, $\frac{1}{1}$; material, obsidian.

Ise. Kuwanagori. Type Fig. 11, $\frac{4}{8}$; material, black flint.

These are very rough and somewhat lancet-shaped.

Noto. Hagni-gori. Type Fig. 7, $\frac{2}{5}$; material, chert. The opening below is very flat.

Mino. Kamogori. Type Fig. 11, $\frac{2}{2}$; material, pitch-stone. These are thick and rough.

Omi. Sakatagori. Type Fig. 11, $\frac{8}{8}$; material, black flint. These are very roughly chipped.

Omi. Inugamigori. Type Fig. 7, $\frac{4}{5}$ and $\frac{2}{2}$; material, chert. The latter are almost triangular.

Sado, Kamogori. Types Figs. 8 and 9, $\frac{4}{8}$ and $\frac{2}{1}$; material, agate and chalcedony. These are broad, flat, and thin.

Other provinces in which arrow-heads are found, as given by Dr. Geerts, are Yamato, Mikawa, Totomi, Hitachi, Hida, Shimotsuke, Mutsu, Ugo, Yechigo, Hoki, Idsumo, Sanuki, Hizen, and Higo.

From this it will be seen that flint implements are to be found over the greater part of Japan.

Besides the small arrows which I have described, larger ones, like Fig. 18, are found. It is possible that these larger forms were used for spear-heads or knives: the larger portion of them to prevent their being broken was buried in a wooden shaft or handle.

I may remark that where the arrow-heads are found large numbers of flint flakes and chips are often met with.

Axes.—These are chiefly polished and rounded in outline. The material of which they are formed is a greenish stone, which in the specimens I have examined appears to be a partly decomposed trachytic porphyry or andesite. From this decomposition hornblende or augite has been partially converted into chlorite, and thus the greenish characteristic colour. I have seen specimens from Otaru in form like Fig. 14. Fig. 16 represents an axe which was dug up at Hakodate, and which

is now in the possession of Captain Blakiston. It is 373 mm. long, 83 mm. broad at the sharp edge, which is curved, and 38 mm. broad ; at the opposite end the face is flat, and the other slightly curved. It is about 35 mm. thick. For several inches along its edges it has been slightly hollowed, these hollows being placed at points marked *a* and *b* in the figure, and not exactly opposite to each other.

On one of those faces there is a ridge looking as if it had been cut from a larger block by sawing a certain distance, and then splitting it off as a slab. This runs from the butt 243 mm. along one face. The cutting edge is rounded and sharp. The stone of which it is made is of a green colour, and is probably a chloritic metamorphic slate.

I mention this axe because it appears to be remarkable for its size. The largest axe mentioned by Sir John Lubbock in his "Prehistoric Times" is 13 inches long and $3\frac{1}{2}$ in breadth, whilst this one is $14\frac{3}{4}$ inches long.

Nearly all these axes have a curved cutting edge ; some of the cutting tools which I have classed amongst these axes were only three pieces of stone or slate sharpened to an edge from one side like a carpenter's plane. In other cases the edges are sharpened from two sides.

Scrapers, &c.—The commonest relics of the stone age of Japan are the axes and arrow-heads which I have described. Other implements which probably belonged to this period are various types of scrapers. These have usually a convex scraping or cutting edge. In some cases, however, this edge is straight, whilst in others it is concave. These two latter forms are, however, rude. The writer of the "Unkonschi," a book in which many of these implements are figured, regards these especial forms as having been fashioned to serve as arrow-heads.

These are from 3 to 6 inches in length, and from 2 to 3 inches in breadth.

It is very possible that some of these may have been used as axes. They are, however, exceedingly rough.

Others may have been used as weights for nets. To say definitely the purpose for which these stones have been employed is, however, a difficult matter.

All the weapons and implements which I have thus far mentioned are probably as old as the kitchen middens, many of them being found in them.

Stone Ornaments, &c., of more recent origin.

Besides the stone implements and weapons which I have described, a vast number of stone curios are to be found in the

archæological collections of Japan. As these would seem to be comparatively more recent, and in many cases to belong distinctly to periods which are historical, I will say but little about them.

Fig. 12 represents a small stone known amongst the Japanese by the name of *Magatama*. In shape they are somewhat like the curved canine teeth of many large animals. The end corresponding to the root of the tooth is rounded and usually perforated. In some cases these perforations seem to have been made from the two sides by means of a rhymmer with a triangular point. Such a one I have in my possession.

These curiously shaped stones, which are generally about half an inch in length, are occasionally dug up, and examples of them are to be seen in almost every museum in Japan. From their appearance they are probably used as ornaments, and Baron von Siebold tells me that he has in his possession a chinese head-dress covered with similar ornaments.

I have not seen anything of this kind either amongst the Japanese or amongst the Ainos. Amongst the Kuriles I have seen small bone ornaments decorating the end of tassels of similar form.

These *magatama*, so far as I am aware, have not been found in the shell-heaps.

They have often been found in the interior of vases which have been dug up. They are made from various materials such as jade, serpentine, jasper, agate, steatite, &c.

The belief of several Japanese authors is that they were introduced from China, and that they were used as decorations for the gods. They are referred to several times in Japanese history. (*See* "The Micado's Empire," pp. 46, 53, 93, where references are made to them being used as decorations for the gods, and as being shown in ancient pictures as the decorations of noblemen, one of which is given.)

From these facts, together with the fact that many of them are made of jade, a mineral which is I believe as yet unknown in Japan, we must regard the *magatama* as being an ornament probably derived from China, and certainly historical. This being the case we need not be surprised that the stones have not been found in any of the kitchen middens associated with the stone implements which were used by people from whom we do not seem to have any written records.

Fig. 13 shows a cylindrical bead or *kudatama*. Such beads are from 1 to 7 centimetres in length, and pierced vertically.

It may be remarked that in order to drill the holes through stones like these, those who made them were probably acquainted with the use of metals. The mode of occurrence of these stones

is similar to that of the *muytama*. Some of them, instead of being cylindrical, are in shape like double pyramids.

Fig. 15 represents a cylindrical stone staff or club. At each end there is a knob which is often ornamented. The length of these vary from one to several feet. They were probably used as signs of authority.

It is possible that these may have been used by the Ainos, and may therefore be classed as being relics of the true stone age. I advocate this view because stones like these have been dug up in Yezo in the old camping ground of the Ainos.

In an elaborate manuscript work upon the Ainos written in the year 1800, which has been kindly lent to me by my friend Mr. James Bescett, of Yokohama, one of these stone clubs is figured.

The writer says it was dug up at Nemuro, and was in the possession of an Aino chief named Shokayo, who lived at Riururi, a mountain about 10 miles west of Shibetsu, in Kutapu. He then goes on to say that the Ainos of the present day have in their houses a stick, which in shape is very like this, called "Ukari," and he expresses his belief that this wooden Ukari represents a more ancient form of stone.

Fig. 17 represents a stone implement, measuring from 300 to 400 mm. in length.

As all of these compared with the implements before described are probably of recent date, and so far as I am aware have never been found in the kitchen middens or associated with materials which we know to have belonged to people who inhabited Japan before the present Japanese, I will pass them over. In several native books they have been described, and much of what may be said about them is to be found in "*Les Produits de la nature Japonaise et Chinoise*," by Dr. A. J. C. Geerts.

The following are some of the deposits with which I am specially acquainted.

The shell-heaps at Hakodate, Nemuro, Omori, and several near Yokohama and Yedo I have personally examined and collected from.

Hakodate.—From the vast number of flint chips and implements which are to be found at and near Hakodate it would seem that this locality must have been a favourite residence of these prehistoric people.

In the roads and lanes leading along and up the face of the south-east side of the mountain, on the face of which Hakodate is built, many obsidian and flint chips, together with a few roughly chipped arrow-heads, are to be picked up. These are best found after heavy rains.

Besides fragments like these near to Yatsugashira, at a height of about 20 feet above the marsh from which the sides of Hakodate mountain slope upwards, I dug out a number of roughly formed arrows, flint chips, and specimens of pottery. Covering the surface of the mountain at this place there is first a covering of grass and bramble.

Beneath this there is a black earth which as you descend becomes lighter and lighter in colour until at last, at the depth of about 10 feet, it is quite yellow. From the fragments of trachyte which this latter contains, it is evidently the result of the decomposition of volcanic ejectments.

In some places the black earth, the colour of which is evidently due to vegetable matter, instead of merging into this yellow subsoil, is interstratified with it, apparently indicating that there had been a series of volcanic eruptions; but between each there had been a sufficient lapse of time for vegetation to grow and form a soil. Imbedded in a series of layers like these, at about 8 feet from the surface, I found a band of shells about 1 foot in thickness. Mingled with these, which were soft and pliable, there was a large quantity of pottery and a few bones.

The pottery which is found in this heap when looked at generally is apparently undistinguishable from that found at Omori and many other places in the south of Japan. It is about a quarter of an inch in thickness, unglazed, and if baked, only very slightly. It represents fragments of vessels of different sizes and shapes. An interesting piece is represented in Fig. 4, Pl. XVII.

The chief markings on the vessels are cord marks, whilst the markings on the Omori pottery are chiefly incised lines.

The stone fragments are chiefly chips of flint with here and there an imperfectly worked arrow. All of these are very roughly formed.

From a number of excavations which were being made in the outskirts of Hakodate whilst building houses, laying out gardens, digging ponds, &c., I also picked up fragments of pottery similar to that which I have described.

In one of these excavations the large polished axe already described was found.

Several smaller axes about 4 inches in length have also been found. The faces of these are generally smooth and convex.

Temiya muru, near Otaru.—At this place, on the ground of Mr. Okumura Hiosuke, a large number of flint implements, arrows, and chisels, together with broken fragments of pottery are to be found in large quantity. Amongst these, two vases were found, one being of the form shown in Fig. 9, Pl. XVII.

One obsidian arrow-head was like Fig. 2, Pl. XVIII.

All were very roughly worked.

Murata.—At this place roughly chipped arrow-heads are found.

Horizima, near Cape Yerima.—At the back of the town in the small paths, after a shower of rain, many arrows may be found, and in the cliff on the N.E. side of the bay there are bands of shells, and with them fragments of chipped flints.

Nimoro.—This is a recently established settlement at the north-east extremity of Yezo. It is situated on flat ground at an elevation of about 20 or 30 feet above sea level. Opposite to the settlement there is a small island about a quarter of a mile in length and 100 to 150 yards in breadth. At its highest point it is perhaps 30 feet above sea level. This guards the entrance to the open bay along the shore of which the present settlement is built.

On the top of this island, at a depth of from 1 foot to 1 foot 6 inches from the surface, I found a band of shells. This, where it was cut across by the face of a scarp, was 2 or 3 yards in length, and 1 foot in thickness.

Mixed with the shells there were many fragments of pottery, in appearance like that from Hakodate.

Amongst the fragments I dug up a perfect vase.

There were also many fragments of stone and arrow-heads. In most cases these arrows had been chipped from both sides, but in one or two examples the chipping was only upon one of their faces. These arrows were apparently made to suit the flake from which they had been cut.

There were also many stone chippings and also a few irregularly broken stones about the size of a man's fist on opposite sides of which there were two notches which may perhaps have been used as sinkers for nets.

The material of which they were formed was flint. In one or two cases obsidian had been used. Rolled specimens of obsidian were to be found upon the beach.

On the mainland upon the west side of the settlement I picked up one or two similar specimens.

Other persons have made similar collections here, and in the house of Mr. Yamieda, at Nimoro, I saw many specimens.

In conclusion, with regard to Yezo, I may say that it would seem as if it were strewn from north to south with the remains of stone implements. There is, in fact, an abundance which would seem to indicate that the stone age has not long been dead.

Omori, near Yedo.—The shell-heaps at this place are situated on and round the edges of somewhat ellipsoidal mound, which forms a rise overlooking flat rice-ground between it and the sea.

On one side this mound is cut through by the railway to show a section 2 or 3 feet in thickness, which is white with shells.

On another side the mound which is, perhaps, 100 yards in length, forms the side of a small hollow down which, at a distance of from 50 to 100 yards, there is a small stream.

I may here mention that these old kitchen middens or bands of shell, of which I have seen several beyond the bluff at Yokohama, are almost always situated near a small stream or rivulet which probably was the source from which these early people obtained their drinking water.

On the opposite side the upper part of the mound is almost on a level with cultivated ground which rises a little higher to form a small plateau.

The shells cover a great portion of this mound, and in some places they may attain a thickness of 5 feet.

The chief character in this heap is the shells (of which specimens of nearly all those which I have mentioned have been found), the pottery, which is chiefly marked with incised lines, and the split bones.

Suyeyoshi.—There are a number of deposits chiefly situated on the top of the bluffs overlooking the village of Suyeyoshi about $2\frac{1}{2}$ miles distant from the Tsurumi railway station.

On the top of one of these bluffs or ridges, for a length of from 50 to 100 yards, there are vast accumulations of shells, some of which are from 3 to 4 feet in thickness. From the number and extent of these heaps I should be inclined to think that the Suyeyoshi deposits represent the remains of a village. The greater number of these deposits are situated quite on the edge of the hill which has here a sharp descent into a deep narrow valley, the bottom of which is at about the same level as the plain which extends from Suyeyoshi to Omori.

The pottery in these deposits carries more ornamentation than any I have met with in any other deposits. In one of the heaps I found a roughly chipped stone axe. The species of shells were similar to those found at Omori.

Mori, Mississippi Bay.—A heap which I visited at this place, in company with Messrs. Biscett and Pryor, was not carefully examined. It is situated on the bank of a small stream which runs into the sea at this place, and is almost wholly made up of shells.

Many other heaps or irregular bands of similar character are to be observed between this place and Yokohama.

Tumuli.—In many parts of Japan large tumuli, which from their shape and position are evidently of artificial origin, are to be met with.

With many of these traditions are associated, as, for example, the tumulus called "Yezo Mori," at Morioka. This mound is supposed to contain the bones of Ainos slaughtered by the General Tamuramaru.* Others are said to be the graves of chieftains.

On the summits of some of these trees have been planted.

Other tumuli again seem to be even without tradition, as, for example, Macpherson's Hill, near Yokohama.

This is 20 or 30 feet in height, and perhaps 50 or 60 yards in diameter. Whilst digging out the side of it my companions met with one or two roughly-chipped celts.

Along many of the country roads as, for instance, the Nakasendo, large tumuli are to be seen. So far as I could learn by enquiry, when travelling on that road in 1878, these appear to be either marks indicating the boundary between various villages or else they were indications of distance like our mile-stones.

The exploration of tumuli like these would probably be unprofitable, but others of which there are so many might yield valuable results.

Caves.—In many portions of Japan there are caves, especially in the limestone districts. Several of these near Jadotsu, in Shikoku, I explored. They were long and narrow. I did not find anything which told of their having been ever tenanted either by man or beast.

Besides natural caves like these, there are in Japan many artificial caves, as, for example, one not far from Totsuka, on the left side of the road leading from Yokohama to Fujisawa. This cave, which contains many passages and chambers, is cut out in a soft grey tuff, the characteristic rock of the neighbourhood. On the walls there are many Japanese inscriptions. This cave is probably very recent.

However, near Kumagaye a number of small caves or chambers have been discovered and partially explored by Baron von Siebold, who, from pottery and other evidence which he found, regards them as being undoubtedly of Corean origin. Similar chambers which may perhaps have been burial places are supposed to exist near Odawara. The names of places in these

* Tamuramaru was a son of Xaritamaru. During the year of Yinriaku (782-806) he was promoted to the rank of Ju-goï, and was made a general of the Imperial guard. After his promotion he proceeded as far as Mutsu or Oshiu where he conquered the tribes (whom the Imperialists of that time called Yebisu or savages) now known as Ainos. After his triumph he was again promoted to the rank of Shō-sammi in the second year of Taidō (808).

In the second year of Konin (812) he died in his 54th year; and was buried in the village Awasumura in the county of Uji. (Odai-ichiran—Chronological History of Japan up to the present time.)

localities also indicate Korean occupation. That in former times there have here and there been colonies of Koreans settled in various parts of Japan is strengthened by the fact that a remnant of these colonies still exist in Satsuma.

They came over in 1598 as potters and settled in Kagoshima and its neighbourhood, where they may still be seen exercising the old art for which they were so famous.

For their history, *see* "The Korean Potters in Satsuma," by E. Satow (Trans. Asiatic Soc. of Japan, February 1878), where reference is made to several other colonies of earlier date.

In Japanese history it is stated that (*see* "Nipon ôdai-ichiran, or Annals of the Emperors of Japan") Kaibara Tokzin, the author of a history of the origin of the Japanese, cites in the place where he speaks of the first human habitation a passage from Souken, another Japanese writer, who says, "After the creation of the world men dwelt first in the open air, but being exposed there to the effects of the wind, the rain, and heat, necessity taught them to hollow out caverns in which they preferred dwelling, in spite of the dampness of the earth which caused them maladies." Souken adds that he has travelled through the whole of the empire, that is Japan, to examine the different localities. It is on the escarpments of the mountains, and above all in places most distant from towns where he found a great number of caverns. The interior of these were furnished with large stones. These caves had their openings from the southern side, and were generally composed of two or three compartments.

The better ones are in the province of Kawachi, near to the banks of the Fatorigawa, the foot of the mountain Ikomadake, and also in the canton of Yamabenokori, in Yamato. All appeared to have been inhabited. . . . Kaibara Tokzin speaks of having travelled in the province of Chikuzen, and having discovered there many millions of caverns, disposed in groups varying from 6 to 20.

Natives of neighbouring villages explored them, and took the stones to form the foundations of their houses, drains, dams, &c.

All the caves were opened towards the south (therefore probably artificial).

It was first thought that they were used as tombs, but on examination Kaibara Tokzin did not find any bones, therefore he gave up this opinion and says that he is convinced that originally they were inhabited.

Besides the caves which I have mentioned, I may also mention the following:—

Miyazake, between the provinces of Kadsusa and Shimosa;

many of these are used as storehouses by the people. My informant, however, did not remember whether they are natural or artificial.

Shiba Nihonyenoki Borayo Kochô, Yedo, in the grounds of the Zempukuji Temple. Length unknown, but probably 250 yards (to the sea). This cave is said to be natural.

Enoshima Island.—Here there is a natural cave worn by the sea along the line of a fissure. In the interior there is at present a small shrine.

From what I have said about caves in Japan, although so far but little has been obtained from them, it is more than probable that they offer as wide a field for the research of the cave-hunter as caves do in any other country, and from them a rich harvest of facts relating to prehistoric times has yet to be reaped.

In concluding my remarks upon these stone antiquities, I may mention that in Japan many collections of them have been made, and much has been written.

The Japanese, who treasure everything that is antique, are by nature archæologists, and amongst them, if statistics could be made, I think we should find a larger number of persons who have a taste for gathering together that which is old and strange than we should meet with in any other country.

Unfortunately the archæology of Japan seems as yet to hold the same position to the archæology of Europe that modern chemistry does to alchemy, or astronomy to astrology; the science, although deeply studied, and containing in it, even as it stands, much valuable material, seems hardly to be yet aiming in the right direction.

Arrow-heads and celts are collected, wrapped up in silk, and are highly prized as curiosities of great value. The taste for collecting, however, does not end with objects such as these, and the archæologist brings into his collection stalactites, curiously formed concretions, and weathered stones, all of which seem to be ranked as freaks of gods or nature.

Notwithstanding the fact that much valueless material has been collected with that which is truly valuable, to one who had time to ransack the museums, of which both public and private there are a large number, and to gather together and then sift the vast amount of literature which exists upon these subjects, the results obtained would form a valuable prize.

PART II.

Comparison of the Markings on Pottery with the Modern Art of the Ainos.

I am told that a comparison between the modern art of the Ainos and the ornamentation which we see upon the pottery of the kitchen middens has already been made, the conclusion being that the two are very similar. Unfortunately I have lost the reference to the paper in which these comparisons are to be found.

However, as the materials which I have, for the purpose of making such comparisons, are those which I personally collected when amongst the Ainos, or exhumed from the kitchen middens, they are, in every probability, somewhat different from those which have been previously adduced; and I therefore venture to offer them as fragments of original material, in addition to those which have previously been given. First, I may remark that the drawings which I have given are those of fragments which are of common occurrence, and therefore it is very probable that the markings on them are typical of the art practised by those who made them.

Fig. 1, Pl. XVII, shows a characteristic surface which was given to the pots. As this was due to some process in the manufacture which was probably unavoidable, it must not be looked upon as having any connection with markings which were placed upon the porcelain for the purpose of ornamentation.

Looking at the other markings we see that they consist of lines and curves, forming geometrical patterns, a character which at once excludes the originators of these markings from any of the northern tribes like Esquimaux, whose ornamentation usually consists in the representation of animals.

From the general character of the ornamentation we should say it was of Polynesian origin, where geometrical patterns are so characteristic.*

From the markings on sheaths of knives, and various instruments and utensils, together with the embroidery on clothes which are used amongst the modern Ainos, we should say that they also were of a southern type.

Horizontal lines filled in with diagonal lines as shown in

* See "Origin of Civilization and the Primitive Condition of Man." Sir J. Lubbock, chap. 11.

Fig. 5, Pl. XVII, are exceedingly common in the carvings of the Ainos. The tatooing on the hands and wrists of the Ainos also consists of diagonal lines of this description.

The pattern shown in Fig. 6—that is, series of parallel lines either straight or curve, arranged in groups to slope in various directions, and used to fill up spaces between horizontal lines or corners—is also exceedingly common.

In modern Aino art there are many traces of their connection with the Japanese to be observed ; thus you meet with the “Kiku-nomon” or chrysanthemum crest of the Mikado, also the “Tomoyemon,” a crest composed of three coma-like figures.

In Fig. 2 a zig-zag pattern is shown. This is met with either in lines or dots. Patterns similar to these are also to be met with, as, for instance, in the carvings which are sometimes fixed upon the prow of their boats.

In addition to the patterns of pottery which I have given, a diamond form is not uncommon, an exact repetition of which is sometimes met with in their embroidery.

Continuous lines of scrolls are common carvings on strips of wood and on the lower edges of their coats. Lines of loops are often repeated, as are also the elliptical forms of Fig. 7.*

Another common series of figures amongst their designs are variations of the key pattern. These are to be seen as carvings, and also on the upper back parts of their coats. This class of pattern I have not yet met with in the pottery.

From these few examples which I have given, it would seem that the common patterns found upon the pottery are still common designs amongst the modern Ainos.

It may, of course, be argued that the style of ornament which has been here spoken about is common to the primitive art of many nations, and a key pattern is as characteristic of archaic art as it is of Aino. Nevertheless, if these fragments point to anything at all, it is likely that they point more towards the Ainos than they do to any other source, and this more especially when we remember that they are found on ground which we know to have been inhabited by the Ainos.

Historical and other evidence of Japan having been inhabited by the Ainos.

Before forming conclusions on the variety of archaeological material which has been exhumed in Japan, it would be well to look to the history of the country. If we do this, we shall find

* Many combinations of these curved forms as, for example, the loops shown in Fig. 8, are to be seen on the carvings on the exterior of their wooden coffins.

that the originators of these materials were perhaps not so far outside the pale of historical record as at first sight might have been imagined.

From history we know that during the first century Japan was invaded from Kiushin by Jimmu Tennô, a man who is regarded as the first Emperor of the country. This was about the year B.C. 660.* The people with whom he fought are regarded by the Japanese as being Ainos, or as they were then called Ebisu, or barbarians. This is confirmed by the history of subsequent periods, which narrates how the Japanese warred against the Ainos until the end of the 12th century.

At the 4th year (A.D. 110) of the reign of Keikô-tenno, 12th Emperor, Yamatotake-no-mikoto, formerly called Ousunomikoto the Prince, invaded the eastern barbarians, by order of the Emperor, and made them surrender, and tranquilized the countries. These would probably be the people who lived near modern Yedo.

Previously it has been mentioned how these barbarians (or Ainos) were slaughtered by Tamuramaru in the eighth century.

Traces of this early occupation of the main Island of Japan by the Ainos is to be seen in the faces of some of its inhabitants, in the names of places, and in the language of the people, especially those in the north.†

It would, therefore, seem very probable that Ainos not only lived in Japan in historic times, but also in prehistoric times, and as we cannot compare the relics which are found with anything that is Japanese, it would seem that we should not be acting rashly if we ascribed them to the Ainos.

The chief objections which have been made to this conclusion are—

1st. The Ainos are not essentially pot-makers, and the art of pot-making when once acquired is never lost. This objection, which has been made by Professor Morse, is, I think, without any substantial foundation.

When I was in Yezo I made many inquiries about pot-making amongst the Ainos. Up the river, which runs into the sea at Nekap, Mr. Maries, a botanist, who has been travelling in that district, told me that at the houses of the Ainos he saw

* In Japanese history this appears to be an accepted fact, but whether it will bear a critical examination is as yet a matter of doubt.

† I am told by Japanese scholars that the change in the names as you travel northwards is particularly observable. For instance, you meet with the Aino words "bori," meaning a mountain, and "bets," a river as in Imabetsu; and what is more, these words terminating in consonants instead of vowels which are so characteristic of the Japanese names, become more numerous the farther you travel northwards. Indications of the former inhabitants are also often to be found in the Japanese names themselves, as, for instance, Ebisuminato, the harbour of the barbarians in Sado.

clay vessels, which, so far as he could remember, were very similar to the fragments which are now dug up, and also that he believes that in this district the Ainos still manufacture their own pottery.

To this I may add that several books written about the Ainos distinctly state that these people are pot-makers. The following is a translation from one of these books:—

“The iron vessels which are used by the Ainos are chiefly those which come from Japan. But in the interior, vessels which are made by the natives are used. The size of them may be large or small, and they are, on the whole, similar in their shape. One kind of earthen pot which is made by the natives, is about 6 or 7 inches in diameter. As shown in the figure, handles are joined to the inside of the pot on both sides, so that the ropes which are tied on to the handles may not be burned when the pot is suspended above the fire.

“As Rinzo (another writer on the Ainos) has described the making of pots in detail, we omit to say more here.”

From this we see that the Ainos are still pot-makers, but what there is left of this art is only a remaining trace of an industry which was once more extensive. Because the Ainos are diminishing in number the demand for pottery has gradually become less; and, secondly, because the Ainos have daily become more and more connected with the Japanese, from whom they could obtain better and cheaper utensils than those they could manufacture themselves, are sufficient reasons to explain why the art has gradually been waning, and under exceptional circumstances like these, when we remember that the cultivated Venetians have forgotten so much of their art of glass making, and the Romans of their pottery, I see no reason why we should not find, now and then, an example of an art like pottery being entirely forgotten, whilst the evidence of the art, in the shape of broken fragments, remain to attest its former existence.

2nd. That these heaps show evidence of cannibalism, and that there is no record of such a habit amongst the Ainos.

In reply to this, all I can say is that, so far, the only evidences of cannibalism are those found by Professor Morse at one heap at Omori. Although diligent search has been made by several persons interested in these enquiries, amongst whom I may mention Baron von Siebold, Dr. Naumann, and myself, not only in the Omori heap, but in many others, not a trace of similar evidence as has yet been found. Is it not possible that these bones described by Professor Morse have been gathered together by accident in the particular portion of the heap which was examined?

If this is so, we must refrain, for the present, from forming any universal conclusions. Should it be found after further examination that Professor Morse's discoveries repeat themselves, all that we can then do is to conclude that those who fed on the shells also fed on human flesh;* and if the Ainos were the people who fed on these shells, it is probable that the Ainos once were cannibals.

Marco Polo shortly after, speaking about Chipangu (Japan), speaks about the islands in the sea over against Manzi, or the Sea of China, where he says about prisoners who cannot pay a ransom, that the man who has the prisoner, "summons all his friends and relations, and they put the prisoner to death, and then they cook him, and eat him, and they say there is no meat in the world so good" ("Travels of Marco Polo," vol ii., p. 209).

Whether Japan is here meant or not it is difficult to say. The probability, however, is that he refers to some of the islands further south, as, for instance, in Formosa, the inhabitants of which place, we know, are not above suspicion of having now and then displayed a taste for the human species.

If the Japanese were ever cannibals, it is in all probability so very long ago that all record has been lost.

When we consider that races which are sufficiently low to practice cannibalism are usually too low to keep records, it is not astonishing that this blemish on the character of a people, from which some of the most civilized of European natives do not seem to be altogether free, should very often be lost.

Professor Morse says, as the result of repeated enquiries, that not only were the Ainos "not cannibals, but they are reported as being so mild and gentle that murder was never known to have occurred. So monstrous a habit would certainly have been known and recorded, particularly in the painstaking annals of early historians." In reply to this, all that I can say is, that from enquiries made by myself amongst Japanese scholars, it is found that the Ainos, although so gentle at the present day, carry in their history traces of as ferocious a nature as is met with amongst the savage tribes of other countries. What should we think of a race who punished robbers by cutting off their feet at the ankles, and who, as a mild form of punishment, boiled the arms and sliced the noses of their victims?† Pro-

* It may be possible that the makers of the shell-heaps were careless of the bones of their deceased friends, like some of the modern Esquimaux. Farry saw human bones in the middens of these people.

Sir John Lubbock, in his "Prehistoric Times" (p. 410), speaks of the indifference shown by certain of the Esquimaux with regard to the burial of their dead, and he says "they leave the human bones lying about near the huts, among those of animals which have served for food."

† For this information I am indebted to Baron von Siebold, and I may add

fessor Huxley says that in the "early ages of the world, the first impulse of man was not to love his neighbour, but to eat him." When we remember the primitive state in which we find the modern Aino, and then hear of the barbarities which, in times not far remote, he was capable of practising, it seems as if a slight step would be sufficient to carry the modern Aino back to a state of savagery, from which even the early inhabitants of Britain do not seem to have been exempt; and although we have no direct proof of cannibalism to bring against the Ainos, to suppose it possible that cannibalism may have existed amongst them in early times, is not a suggestion without foundation, and this more especially when we remember that the countries of the Pacific represent an area where cannibalism has in latter days been, as compared with other countries, at a maximum.

Coreans and Kamschadales in Japan.

From the undoubted fact that the Ainos were the predecessors of the Japanese in Nipon, it seems highly probable that the remains of which we have been speaking may be regarded as their spoil.

The question next arises as to whether traces are to be found of any other people besides those who have left so many monuments in the form of kitchen middens. This is to be answered in the affirmative.

Already I have given evidence of the existence of colonies of Coreans, a remnant of whom are to be seen plying their old trade, and still capable of speaking their old language in Satsuma.

To these I would also suggest that it is extremely probable that Japan had inhabitants not only coming from the south and west, but also from the north. There were Kamschadales, or Alutes.

that the modern Ainos have still a practice of punishing a man who is guilty of wrong by beating with clubs, which is at times, in an individual who is not strong, sufficient to cause death. This practice is called "Ukari" and in many of their houses I am told that the club, about 3 feet in length, which is used for this purpose, may be seen.

In the 9th volume of the "Hokute Kijiriaku" (an account of the northern savages), a long account is given of the massacre by the Ainos of more than 400 Japanese merchants, most of them being killed whilst sleeping. This savage slaughter, which was committed by a tribe called "Shamushain," appears to have been solely for the sake of plunder. It took place in July 1670.

In the "Yezo-ki" ("Record of Yezo") it says that it is not uncommon for an Aino to have six or seven wives. These wives do not live altogether but in various parts of the country. Should any of these women be violated the punishment inflicted upon the evil doer is to tear the hair from his head until not a single hair remains.

If we look at a map and see the chain of islands which connects Kamschatka with Japan, and then remember how the few inhabitants who yet remain upon them continually migrate from one of these islands to another, we see that the supposition is not beyond the pale of reason.

On the island at Nemoro there are a number of more or less rectangular pits. In most cases the sides of these have fallen in, so that they appear like rounded hollows.

Owing to the long grass which covered these at the time of my visit, I was unable to count their number, but there were perhaps twenty of them.

Groups of similar pits are to be observed at Hochishibets, and also between it and Hamanaka.

These pits were first observed by Captain Blakiston.*

When I visited the Northern Kuriles in 1878, I there had opportunity of examining many of the houses of the Alutes, and of a tribe of Kamschadales, who call themselves Kurilsky. The settlements of these people consisted of groups of half underground houses,—rectangular pits covered with a roof. One of the settlements which I saw in the Island of Shimushi was deserted, and many of the roofs had fallen in.

The similarity of these pits with those seen in Nemuro, suggested the idea that these latter might at one time have served as houses, and it is certain that if the deserted settlement which I saw at Shimushi was visited by some traveller 100 years hence, it would be extremely difficult to distinguish between it and many of the groups of pits which are to be seen in Yezo.

So far as the evidence goes, it therefore does not seem improbable that there was a time when these underground dwellers of the north extended much further south than they do at present.

When these Yezo pits have been carefully explored, further evidence may be adduced to substantiate this surmise.

Position of Shell-Heaps.

All the shell-heaps which I have seen are at a slight elevation above the present sea level. Thus, at Nemuro, although they are close to the shore, they are at a height of 20 or 30 feet above it. At Hakodate they are about the same height above the sea

* In a paper written by this gentleman in the proceedings of the Geographical Society, July 27, 1872, I searched in vain for a reference to these pits. In all probability this interesting and valuable information was struck out in the mutilation which this paper appears to have undergone in order to reduce it to the form in which it now appears.

level, but situated so that they overlook the marshy ground which at this place forms portion of the low peninsula which connects Hakodate Head with the mainland.

At Omori the heap is at about the same elevation, but situated at a distance of about half-a-mile distant from the present shore line. The same remark applies to all the other heaps in this district. As these ancient people who have left these relics behind them subsisted to a great extent on food obtained from the sea, it is very probable that when heaps like those at Hakodate and Omori were formed they were much nearer to the seaboard than they are at present.

This view is confirmed by the fact that all the fishermen of the present day live between these heaps and the sea, and the greater number of the modern kitchen middens of Japan, which are also made up of shells, are to be found near the shore. This being the case, it is probable that since the time when these heaps of which we speak were formed, either elevation or a filling up of the sea by the deposit of materials must have taken place, and of both these actions I think we have substantial geological evidence. As at some future time I hope to speak of both these phenomena more in detail, I will now only state the evidence I have collected in its briefest form.

Evidence of Elevation and Silting up in Yedo Bay.

The upper portion of Yedo Bay is extremely shallow—so shallow, in fact, that if you do not know the direction of the few channels which exist, it is extremely difficult to traverse it for several miles out from the shore, even if you are only in a small rowing-boat. Large ships cannot come up to Yedo, but have to anchor 5 or 6 miles distant from the city, at a distance of about 3 miles out from the nearest land. The general depths as given on a chart of this portion of the bay are from $\frac{1}{4}$ to 4 fathoms.*

The bottom of the bay is made up of silt and mud, identical in appearance with that which we see brought down by the muddy waters of the many rivers which enter it. These are large and,

* From Yedo going in a S.S.E. direction towards the middle of the bay you find the depths as follows :—

For the first	$2\frac{1}{4}$ miles,	a depth of from	$\frac{1}{4}$ to	1 fathom.
„ next	$\frac{1}{4}$ „	„	„	1 to 3 „
„	1 „	„	„	3 to 5 „
„	$2\frac{1}{4}$ „	„	„	5 to 10 „

At this point you are about half-way across the bay ; the greatest depth is about 12 fathoms.

considering that their lower course is across the Yedo plain, generally appear to be heavily charged with sediment, and it is no doubt to them that we must look in order to find an explanation for the sediment which in places visibly accumulates even in the lifetime of an inhabitant. When measurements of the water which annually is poured into the bay by these rivers and of the vast quantity of mud which they carry in suspension have been made, it will in every probability be found that sediment is accumulating in Yedo Bay at a rate equal to, and may be even greater than, that which has been observed in many great rivers like the Nile or Ganges.

Not only is the bay being in this way silted up, but it is also probably becoming shallower by a rising of the land at several places round Yedo Bay. Pholas borings have been observed at heights considerably above the present watermark.

As one example of these I may mention borings in the cliffs in the eastern side of Mississippi Bay, near Yokohama. Another example I observed in the cliffs beyond Yokoska. These latter are about 10 feet above high water-mark.

These markings very clearly point to the fact that one of the last movements of the land near Yedo was an upward one.

Now, if we put these two agencies together, we ought in Yedo Bay to find evidence of a rapid encroachment of the land upon the sea.

That this is actually the case we need not go further than history and old maps.

Quite recently in the "*Nichi Nichi Shinbun*" (*The Times of Japan*) a reprint of an old map was given. The date of this was 1459. From this map we see that only 400 years ago the sea reached over many districts which now are land. Asakansa is on the seashore and much of Fukagawa is beneath the water.

This encroachment was not only over the lower ground near Yedo, but also over the ground near Kanagawa, near Yokohama.

In history we read that junks came to Asakusa, now one of the most populous districts in the centre of Tokio,* and as a preservation of this fact a seaweed used as food by the Japanese is called Asakusa-nori, from the place where it was originally collected. In the Asakusa Library maps are given of the following dates: 1635, 1661, 1673, 1690, 1717, 1718, 1732, 1752, 1787, 1848, and recent ones. By comparing these together,

* It is said that at the time when many of the deep moats which intersect various parts of Tokio were dug, the material was used to reclaim a portion of the bay. These sections, however, show a truly stratified series and not a deposit which we should expect to find in land which had been artificially formed by the filling in of earth.

and also with the map of 1459, the gradual changes which have taken place may be learnt.

In the map of 1655 many of the chief features which exist in the city are to be recognised.

Thus the Ginza, and the first canal running parallel with it, are shown as being quite close to the bay, whilst at present the distance to the sea is at least 800 yards ; that is to say, the land has advanced at this place at the average rate of about 3 yards per year.

In other parts similar changes have taken place, but apparently at a different rate.

That much of the lower portions of Yedo plain were in recent times covered by the sea, or else have been formed like a delta from the accumulation of mud, is seen from its geological character, and also from the numerous loosely stratified beds of shells it contains, all of which, so far as I can judge from a number which I have collected, do not appear to be different from those now living in the bay.

As examples of the structure of the low ground near Tokio, I give the following sections obtained from borings near the Naval College :—

I.							
		ft.	in.			ft.	in.
Alluvium ..	..	7	5	Sand compact ..	..	25	1
Mud..	..	14	5	Compact sand ..	..	31	1
Mud and shells	..	17	0	III.			
Compact clay	..	25	6	Alluvium ..	..	7	0
Sand..	..	30	0	Mud..	..	10	0
Mud and sand	..	39	2	Mud and shells	..	20	3
Compact sand	..	44	0	Compact clay	..	25	8
Sandy clay ..	..	46	3	Compact sand clay ..	..	30	6
II.				Compact sand	..	32	6
Alluvium ..	..	5	4	IV.			
Mud and shells	..	7	4	Alluvium ..	..	8	2
Mud..	..	12	9	Mud..	..	23	3
Sand..	..	14	1	Compact clay	..	28	8
Mud and sand	..	16	2	Compact sand	..	30	6
Compact sand clay ..	..	17	7				
Compact clay	..	22	4				

The beds of mud which are mentioned are extremely soft, and altogether like that which forms the bottom of the bay.

Evidence of Elevation in Yezo.

Round the greater portion of the coast of Yezo there are long lines of terraces or old sea cliffs. Many of these have a steeply sloping face. They are usually about 20 feet in height, and are long and very regular.

In many places they are so prominent that they cannot fail to attract the attention of every visitor.

I have chiefly observed them near Hakodate, round Volcano Bay, and on the south part of the west coast, but they exist in many other parts round the island.

The terraces near Hakodate seem to be of marine origin, and Mr. B. S. Lyman suggests that they may have been formed when the sea between Yezo and Nipon was a closed basin in which the water was standing successively at different heights. (*See* Prelim. Report "Geological Survey of Yezo," p. 16, by B. S. Lyman, 1874.)

If the water between Yezo and Nipon ever existed as a closed basin, the sea must either have washed its barriers away, or else subsidence must have taken place. If barriers ever existed, it is probable that traces of them should yet be indicated upon charts.*

If we look at a chart we see that the shortest distance between Nipon and Yezo is about 11 miles, and the greatest depth is 120 fathoms; and no soundings seem to indicate the former existence of a barrier. Nor do I think that any former land connection, such as the closed basin would imply, has been removed by subsidence.

If we compare the flora and fauna which exists in the two sides of these straits we find in the southern portions of Yezo the woods almost wholly composed of hard wood, whilst in Nipon conifers are abundant.

This is a great distinction, but it is so evident that it is remarked by almost every visitor.

In Nipon we find a sheep-faced antelope or goat, a monkey, and a black bear, none of which exist in Yezo.

In looking over the list of birds published by Captain Blakiston and Mr. Pryer (*see* "Ibis," 1878, pp. 209-250), I observe that many distinctions are to be made between the avifauna of the two islands.

For example, the jays and woodpeckers are of different species.

In Yezo there is a birch grouse, which is not to be found in Nipon.

Ptarmigan are only found in Nipon, and the same may also be said about pheasants, which are not to be found in Yezo.

Looking, therefore, first at the depth of the channel between Yezo and Nipon, and, secondly, at the great differences existing between their fauna and flora, it is probable that it is a long time

* At the eastern entrance to the Tsugar Straits, which separate Nipon from Yezo, there is a depth of 102 fathoms; at the western entrance 67 fathoms; and 102 in the middle.

since the two were connected ; and, therefore, rather than imposing upon ourselves the difficulty of explaining the existence or the disappearance of a barrier of land, it is easier to imagine the lines of terraces to represent so many old sea cliffs which have been produced during elevation.

If sediments have been deposited, and if elevation has taken place, it is now easy to understand the meaning of the positions which are raised above or lying back from the present water line, in which we find these ancient middens.

Evidence of the encroachment of the land upon the sea during recent years is to be seen in an old map of Niigata. Details of this map, which is in the possession of Mr. Troup, who at the time of my visit to the West Coast was Consul at Niigata, I have not been able to obtain. The encroachments, however, were so great as to attract the attention of the Local Government, who in consequence organised a fresh survey of the ground, in order to regulate the taxation of the farmers who in many cases were paying for a much less area than they actually possessed. In this map a great portion of the ground in which Niigata stands is represented as an island.

Parallel to the coast of Niigata, a line of sand hills seems to mark an old shore.

To a large extent all this encroachment of the land upon the water will be due to accumulation of sediment brought down by the Shinanogawa.

I may also mention that old maps of Osaka, one of which I have now in my possession, show evidence of similar alteration.

Evidence of this sort, which is obtained from all maps of places like Yedo, Niigata, and Osaka, shows that the land has been gaining on the sea. The raised Pholas borings at Yedo indicate to us that this has been partly by elevation. Accumulating sediment has assisted this action. At Niigata and Osaka we have only evidence of accumulating sediment. During this accumulation it is possible that elevation may have been going on, because the increase of land has been so rapid ; but under no circumstances could we well suppose that depression had taken place.

Age of the Omori and other Middens.

Already I have given the rate at which the land has been gaining in the sea at one place in Yedo as being three yards per year. If I take a number of other points I obtain a series of results varying from a few inches up to four or five yards per year. Now, if I consider that these shell-heaps at the time of their formation were on the seaboard, and I measure the distance

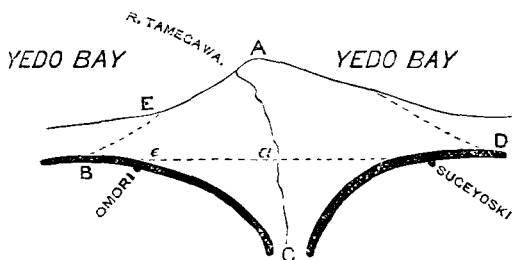
which they are now removed back from it, having a rate at which this material accumulated, I have the means of approximately calculating the number of years which have elapsed since the formation of these heaps.

The chief source of error in this calculation will lie in the manner in which the rate of increase is reckoned.

It would seem that the rate of increase must either be observed or else calculated for the line between each shell-heap and the sea. On every delta it is probable that the rate of increase along similar lines will follow the same rule, but the rule for any particular delta will depend upon special circumstances.

This I will illustrate by the Omori deposit, which lies on the edge of a delta formation at the mouth of the River Tamagawa.

Here the delta has the general form *A, B, C, D*. The thick curved lines *B C* and *D C* represent bluffs or scarp, which apparently mark the old shore line.



Since the delta reached the dotted line *B D*, the point *A* has advanced at a greater rate than any such point as *E*.

In fact the rate of advance along *eE* is to the rate of advance on *aA* as $\frac{eE}{aA}$ or $\frac{Be}{Bu}$ or $\frac{BE}{BA}$.

In other words, in all probability *eE* took as long to deposit as *aA*.

Now assume that *aA* was deposited at the lowest rate which I can with any accuracy determine for advance under similar conditions in Yedo Bay. This rate is two yards per year, and it is measured on the delta of the Sumidagawa.

As measured from a chart, *Aa* = 6,160 yards, and to form it at the rate of two yards per year, gives a period of 3,080 years.*

If I had been able to determine the rate of advance on the Tamagawa itself, which is a large river bringing down vast

* At rates of three, four, and five yards per year, the periods become respectively 2,053, 1,540, and 1,232 years.

quantities of sediment, the result would probably have been even less.

The period would also have been less if I had taken an average rate of advance, or in fact any higher rate of advance than the one which has been used.*

CONCLUSIONS.

From the facts which I have collected together in the preceding pages I am inclined to ascribe the origin of the greater number of the older relics, more especially those exhumed from the kitchen middens, to the Ainos.

My reasons for doing this are, first, we have historical evidence showing that in olden times, when the present Japanese came to Nipon, they found it tenanted by Ebisu or barbarians, whom they recognise as the ancestors of the modern Ainos.

Year by year the aborigines were driven step by step towards the north. About the year 800 they were struggling near Morioka, and by the year 1200 they seem to have been practically exterminated from Nipon, and those which remained or had taken refuge further to the north in Yezo were completely subjugated.

In early times, that is a thousand years ago or so, Ainos lived in the districts where the kitchen middens are found, and they still live where similar middens are found in Yezo.

It is therefore probable that the Ainos are the people who have left these traces behind them. This is confirmed by the nature of these traces. The pottery which is found in the middens is such as could be made by a barbarous people.

It does not seem possible, so far as I am aware, to identify it with anything which is Japanese, whilst its ornamentation is very like that of the modern Aino.

Then there are the stone implements. These also may have been Aino, stone implements having been used amongst the Ainos up to a period which is quite recent.† In confirmation

* From this we see that geological reasoning brings us to the conclusion that at a period—at the greatest estimate 3,000 years ago, and at the least estimate 1,500 years ago—the Omori deposit was on the seaboard. History tells us that about 2,500 years ago Jimmu Tenno came to Japan and fought against the Ainos. It is therefore very probable that the Omori deposit was formed about the period when we know from history that Japan was inhabited by the Ainos.

† In going through the museums in Yedo, amongst the flint arrows, the chisels, the *magatamas*, some of which are 6 inches in length, the circular stones with central depressions like “chipping stones,” and other ornaments and implements, I have seen many old articles of bronze, as, for instance, spear heads. What the history of these is I do not know, but they probably indicate a period perhaps corresponding to our bronze age.

of this I may quote the following passage taken from a Japanese MS. book written in the year 1800. The writer, whose name is omitted, is describing the stone implements which have been found in Yezo. The subject of the book, of which there are many volumes, is the Ainos.

He says: "A chief called Shongo, of Nemuro, told me that in old times, when there were no cutting tools of metal, the people used stone tools. The stone they employed was called 'aji.' It is of a black colour. There is a sort of hard stone called 'ironstone,' which is also used. Even now tools of this description are used by those who dwell far in the interior."

Secondly, we observe that where heaps of shells like those forming the kitchen middens were formed, they must have been near to the sea, just as the modern heaps are; and if we turn to geological evidence, we see that, less than 3,000 years ago, heaps like those at Omori were in all probability on the seaboard, and that previous to such a period such spots like these, unless we imagine discontinuity in the working of the geological agencies, which we see at present, could not have been inhabited because they would have been more or less submerged.

Therefore the probability is that these middens were not formed either before or after the time when the place where they exist was inhabited by Ainos.

History and geology support each other, and we are brought by them to the same conclusion, namely, that in every probability the kitchen middens of Japan are of Aino origin.

Beside the remains of Ainos, in the extreme north we find a number of pit dwellings, indicating a people who may have been Kamschadales or Alutes.

In the south, dotted about here and there, there are traces of Coreans, examples of whom still survive. The coming of the Coreans seems to have been in historical times, and subsequent to that of the people who are the ancestors of the modern Japanese.

Altogether, therefore, if we omit the Coreans, there seems to have been since the year 600 a migration northwards, brought on by the invasion of the Japanese advancing from the south.

This retreat towards the north seems to be similar to that which has been traced in so many parts of the northern hemisphere subsequent to the glacial period.

In Japan, so far as I am aware, there are no traces of glaciers even on the highest mountains. But from an examination of a large collection of shells taken from the alluvial deposits of Musashi made by Dr. Hilgendorf (formerly of Yedo), it would seem that there is an indication of its once having been colder in the neighbourhood of Yedo than it is at present, certain

species which he identified being now only found in the vicinity of Yezo.

To this I may add that I have seen jaws and teeth of fossil elephants obtained from the alluvium near Yokosuka.

These also may indicate a more southerly extension of the Siberian mammoths, and also a colder climate.

The northward migration of the Ainos and Alutes or Kamschadales is, however, far too recent to be ascribed to that of variation in climate.

In Europe it would seem from what Mr. Boyd Dawkins tells us in his "Cave Hunting" that the flint implements and other spoor we find in caves and gravels were left by a race which travelled northward over the moraines of retreating glaciers. Long after this we had again migrations, as, for example, in the fifth century, when the Gaelic-Celts were driven northwards by the advancing Danes and Saxons, and it is here, I think, we find a parallel both in time and manner of the migrations in Japan, which left behind them the spoor of which I have been writing.*

At some future time when more evidence has been collected our inquiries may, perhaps, go still farther, and we may, perhaps, discover the origin of the Ainos.†

These connecting channels are also frozen over. From this we see that there would be no difficulty for Japan becoming populated from Asia.

In order to learn something about the origin of the Ainos, we must study them as we have studied other nations. To an ordinary observer, from a physiological point of view, they do not appear to be connected with any of their neighbours. By some it is said that the Aino tongue holds an intimate relation with the Japanese, whilst others totally deny the assertion.

* If the Japanese come from the west it is, of course, quite possible that a portion of the early inhabitants which were formed in Kiushiu and the southern portions of the country may gradually have gone southwards, but of the exodus in this direction proofs have yet to be adduced.

I myself, however, should be inclined to think that the Japanese came from the south and east, in fact that they were of Polynesian origin. I venture this remark on account of the many similarities which are so very observable between the inhabitants of many of the Pacific Islands and Japan. It is needless to say that the origin of the Japanese is a subject which yet remains to be investigated, and what I have said is as yet only a suggestion.

If we look at a map we see that at the northern extremity of Yezo, the distance across to Sagahlin is only about 22 miles. Between Sagahlin and the mainland the distance is again very short (only 5 or 6 miles) and is so shallow that at low tide after certain winds you can walk dry shod into Asia.

† In Japanese history we are told the story about an Asiatic princess who, fleeing from her father, took refuge in a canoe, and in company with a dog was drifted to Japan. The result of this union were the hairy Ainos. Originally the Ainos were called Ebisu or barbarians, and the word Aino is by some said to be derived from the circumstance of the above story,—“Inu,” which became corrupted into Airo, meaning a dog.

Subjects like these, together with those relating to customs, tradition, folk-lore, and the like, have yet to be investigated, before we can pronounce any verdict about the origin of the Ainos.

In conclusion, I beg to remind my readers that the foregoing paper by no means purports to be an exhaustive treatise of the subject embraced beneath its title.

Whilst giving a general outline of some of the more important facts connected with the early inhabitants of Japan, I write chiefly for the purpose of adding a few facts to the general store which I feel will very shortly be harvested.

From the vast amount of material, geological, archæological, and literary which remains to be exhumed, I see that it would be easy to spend years in continuing to examine new mounds, and in extracting from manuscripts and histories. However, from the little which I have so far gathered, and which I have now given, I think there is sufficient in it to connect together in an intelligible manner the outline of the history which has been given.

Several explorers are now in the field who have already collected together a vast quantity of material. When this is published it may modify many of my conclusions, but I trust my materials have been sufficient to maintain the general outline of the geological and ethnological changes which have taken place during the more recent periods in this interesting country of the "Rising Sun."

NOVEMBER 23RD, 1880.

ALLEN THOMSON, Esq., M.D., F.R.S., *Vice-President, in the chair.*

The Minutes of the last meeting were read and confirmed.

The following list of presents was read, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From Prof. F. V. HAYDEN.—History of North American Pinnepeds.

By Joel Asaph Allen.

From the AUTHOR.—*Les Nécropoles du premier âge du fer des Alpes Françaises.* Par M. Ernest Chantre.

—Recent Discoveries in the Parishes of Chagford and Manaton, Devonshire. By W. Pengelly, F.R.S.

—Notes on recent notices of the Geology and Palæontology of Devonshire. Part 7. By W. Pengelly, F.R.S.

From the ACADEMY.—Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg, T. XXVI, No. 3.

From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland, Vol. V, No. 41.

From the SOCIETY.—Journal of the Society of Arts, 1460, 1461.

— Journal of the Royal Geographical Society, Vol. XLIX.

From the EDITOR.—“Nature,” Nos. 576, 577.

— Revue Scientifique, Nos. 20, 21.

— Correspondenz-Blatt, Sept., Oct., and Nov., 1880.

The election of Dr. W. R. HUGGARD was announced,

The Director read a letter from Mr. Brian Hodgson referring to a collection of Nepalese native drawings, presented by him to the Institute.

It was proposed by Mr. Hyde Clarke, seconded by Mr. Walhouse,

“That the cordial thanks of the Members of the Anthropological Institute, in public meeting assembled, be presented to their Member, Mr. Brian H. Hodgson, for the munificent donation to their collection of his drawings and illustrations of the Himalayan regions.”

Mr. Howorth, Mr. Bouverie Pusey, and the Chairman spoke in support of the resolution, which was carried by acclamation.

The Director read a paper by Dr. Paul Topinard, entitled “Observations upon the Methods and Processes of Anthropometry.”*

A discussion ensued in which Dr. Garson, Mr. C. Roberts, and the Chairman took part.

A paper “On the Origin of the Malagasy,” by Mr. C. Staniland Wake, was read, upon which Mr. Keane, Mr. Howorth, and Mr. Bouverie-Pusey joined in a discussion.

The papers to be read at the next meeting were announced.

I. NEOLITHIC FLINT IMPLEMENTS *of the NILE VALLEY and* EGYPT. By R. P. GREG, F.G.S., F.S.A.

It is only recently that flint implements, chiefly, however, *flukes*, have been noticed as occurring in Egypt, and notably at only two localities, viz., at Helwan, 15 miles south of Cairo, on the east side of the Nile valley, and in the Thebaid, on the west side; at the latter locality, first. I think, noticed by Sir John Lubbock (*see* a paper read before this Society by Mr. A. J. Jukes Brown, December 11th, 1877). During the last winter, spent on the Nile, I was successful in finding a number of other localities where worked flints, chiefly *flukes*, occur.

* *See* “Journal of the Anthropological Institute,” vol. x. No. 23.

I append a list of these localities, found on either side of the Nile valley, occurring more or less frequently over a distance of some 400 miles, say from the Delta nearly to Silsilis, where the Nummulitic limestone, containing flint, ends, and the Jurassic sandstone takes its place.

Wherever flints of a suitable nature occur, either on the slopes of the desert and wadis, just above high Nile level, or on the crests of the nearest hills, there I believe, as a rule, flint *flakes* or *chips*, worked by man, may be found. Well-worked flints, as arrow-heads, knives, scrapers, celts, &c., are excessively rare; in fact, I hardly found any. Where water was so scarce, and the sun so hot, the flakers probably took their rough flakes to be worked up and finished at home, or on the banks of the Nile itself. *Scrapers* especially are not to be found, perhaps because, in a tropical climate, the skins of animals were not required for clothing. *Cores* I found, but by no means abundantly, and, except near Feshun, not of a very regular shape. I found a few small circular *saws*, as they are sometimes called, somewhat similar to those found in county Antrim, Ireland; a few *strike-a-lights* and spoiled *gun-flints*. It is only from Helwan that I have seen really well-worked flint tools; where *awls* and nicely worked splinters, with a few *knives*, *saws*, and *arrow-heads* have been found. Near Gebel Herréedee I found some very large heart-shaped flakes, possibly intended for spades, with large bulbs of percussion, not made out of ordinary flint, but of a hard, cherty limestone. I saw at Cairo a very pretty collection from Helwan, of about 700 specimens, chiefly, of course, flakes and splinters. In the museum at Boulaq there are a few specimens both of flint, stone, and bronze implements, including a fine *arrow-head*, but unfortunately the localities are not specified. I may say, as a rule, that the flint flakes, &c., found in Egypt are of two or three different periods; especially some of those found in or near the valley of the tombs of the kings (Bab-el-Molook) which have the appearance of great antiquity, and almost palæolithic; whilst many others close by have a much fresher appearance.

Flint flakes and splinters are very numerous in and about this valley, and on both sides of the rising ground and necropolis, on either side of the entrance to it, from the temple of Koorneh to some miles northwards. Flints may specially have been required at this locality for embalming purposes.

They are also common for an extent of some miles on the tableland on the east side, opposite Feshun, about 100 miles south of Cairo. As a rule, it may be said that the flakes now found in Egypt are rough and not large; the largest occurring near Feshun, and the smallest and best finished at Helwan, where

there are springs of water inland, some little distance from the river bank. It is very probable that the flint itself, in many places, is not of a good quality for working up. In some localities I noticed that the flints had been evidently split by the mere heat of the sun, but the fractures in such cases are readily distinguishable from those produced by human means. One particular form like small triangular or leaf-shaped (untanged) *arrow-heads* I specially noticed, however, as having a very deceptively artificial appearance.

Not unfrequently I found many chips and a few flakes scattered round the very stone on which the flaker himself must have sat when at work. Generally, bits of rough red pottery are to be found, even in out-of-the-way places, where flint flakes occur, and which I have little doubt are often of the same age as the flint-workers. Judging by the appearance and nature of this pottery, as compared with that found about the sites and tombs of ancient cities, 1000–2000 years B.C., this is the conclusion I came to. I brought home a few sample specimens of this style of pottery. On the site of more than one old city, and notably at one near Gebel Sheykh Embarak, they occurred clearly on and over the old *débris* itself. About the graves and tombs and sites of the very old city of This, or Thinis, near Abydos, and at Koorneh, near Thebes, I occasionally found worked flints; but it was not easy to say whether they were necessarily of a date anterior or not to the tombs or cities themselves. On the platform of rock and desert, near Cairo, on which stand the great pyramids of Ghizeh, 4000 or 5000 years old, and much covered with the *débris* of stuff chipped from the stones for the pyramids, tombs, and temples, I could hardly find a single piece of flint of any kind, and certainly no worked ones; whilst all around in the real desert just outside there are millions of loose flints, and I found a few old worked ones (flakes). About the sites of the older pyramids and tombs of Maydoun and Sakkarah (3rd to 5th dynasties), I found few or no traces of worked flints, pointing rather to the conclusion that in the immediate neighbourhood of those very old historical monuments the flint-workers were of a time anterior to those early buildings, as are probably also the Helwan-worked flints on the opposite side of the Nile valley. Taking everything into consideration, I am of opinion that the worked flints and flakes of the Nile valley are mostly of an age both before and after the strictly historical period of Egyptian history, say 2000 years B.C.

It may here be stated that stone *celts* are of rare occurrence in Egypt, possibly arising from a very early use of bronze, which must have been of use 3000 B.C. at least. I heard of two grooved stone *maules* being found last year near the pyramid of Aboo-

roash, five miles north of the pyramids of Ghizeh. In the Boulaq Museum I think I only saw one or two stone *celts* or *chisels*. With respect to the mooted question as to whether the ancient Egyptians used bronze or iron for their chisels and picks employed in the quarrying and cutting of stone, I can throw little or no light. It is difficult to conceive how they could have quarried so extensively and so skilfully, as they certainly did, without the best-tempered steel tools. In 1823 the French found an old bronze chisel in the workings of the large sandstone quarries at Silsilis; and in the Museum at Boulaq there is an excellent and characteristic example of a stonecutter's chisel, with a squarish point (much blunted by use). Several bronze chisels, such as are used by masons, have also been found at Sarabut-el-Khadem, with worked flints, 12th to 18th dynasties; and bronze hoes at Tel-el-Khadem.* I believe no *iron* chisels have been found. I collected some of the dust and sand deposited in the clefts of the rocks, immediately under the numerous large scars or marks where evidently the tools were sharpened, with a view to its examination on my return to England, but I can find no traces of either bronze or iron-oxide amongst the particles in this sand with the microscope. Speaking of the *quarrying* of the ancient Egyptians, those who have not seen some of these old quarries can have a very poor idea of their enormous extent, or of the regular methodical way, step-like, in which they were cut, split, and worked; in most places every mark of the pick or chisel can still be as clearly seen as the day they were done. I believe they must have used picks with handles, as well as chisels and mallets. The tools evidently were often pointed, as well as in many cases half-an-inch to an inch wide at the cutting end. Where the rock is sandstone, the furrows or marks in the adjacent rock, made by the workmen grinding or sharpening their tools, are often to be seen in hundreds; where the rocks were of limestone, I did not notice any such marks.

I may here notice that *flanged celts* and palstaves, such as are found in Europe, have not that I am aware of been found in Egypt; which, if true, tends to show how completely the earlier Egyptians were removed from European influence and cultivation, or *vice versa*, as it may be. The few celts I have seen in museums are flat, and not unlike the earlier type found in Europe and in Ireland especially. The bronze implements found in Egypt are, I believe, mostly knives, daggers, arrow-heads, and axes.

* Some ancient bronze mason's chisels, both from Egypt and from Assyria may also be seen in the British Museum.

A List of Egyptian Localities for Flint Implements.

Abou-Hamed, near Zagazig Railway Station, Delta.

Ghizeh and Helwan, near Cairo.

Feshun (east bank of Nile).

Gebel Sheykh Embarak (east side).

Gebel Herréedee (east side).

Sioot (five miles south-east side).

Gebel Toohk (near Girgeh, ditto).

Kasr-el-Syad (east side).

El Kab (east side).

This and Abydos (near Memphis, west side).

Dendera or Tentyra (desert, ditto).

Thebes (hills on both sides, chiefly, however, in and near Bab-el-Molook).

II. THE PALEOLITHIC AGE IN EGYPT.

I found nothing in the way of stone implements having a decided or certain palæolithic character. I found a few doubtful flint flakes, and one apparently showing bulb of percussion in the undisturbed earth, at the necropolis of Koorneh, in the Thebaid; this earth¹ consists of a *débris** formed of angular nodules of whitish limestone rock and flints; at some 10 or 20 feet above present high Nile level, and forming the earth in which the many tombs and graves round about, were excavated to a depth of some 10 or 15 feet.

Sir John Lubbock found, I believe, an undoubted palæolithic implement in a neighbouring valley; but I have not seen it. Some of the flint flakes in the valley of the Bab-el-Molook hard by, have a palæolithic character. I heard of a palæolithic implements being picked up last year by an American gentleman at the larger petrified forest near Cairo, but I have not seen any published description or drawing of it.

Palæolithic Implements, Dardanelles.

Mr. Frank Calvert, of Dardanelles, lately showed me several implements, one notably of quartzite, and two others of flint, undoubtedly palæolithic, and which he had found with quartzite, and other primitive boulders; the latter not unfrequently striated, and evidently of glacial origin. These boulders and

* Or deposited ages ago when the Nile was an estuary of the sea, and the land depressed some hundreds of feet below the present level, and consisting probably of detritus formed by the falling in of the adjacent ridge of hills or cliffs. Since this paper was written I hear that palæolithic worked flints have been found in undisturbed gravels near Thebes by General Pitt Rivers, at the tombs of the kings, some miles above Koorneh.

implements occur, dispersed along a ridge of meiocene formation, and have evidently been brought down from the mountains, some miles inland. This natural ridge at one time, has apparently formed one of the lateral margins of a glacial valley coming down nearly at right angles from the higher hills, to the strait of the Dardanelles. One of the implements of white quartzite is rough, as if it had not been quite finished, but is not water-worn. One of the others, very slightly water-worn, shows most distinctly the working on both sides, and is of the heart-shaped flatter type, like some of those from the gravel-beds of France and Suffolk. The height of the ridge where they occur is from 100 to 300 feet. Mr. Calvert also told me he had a year or two ago found, on the the northern side of the Dardanelles, where there was an old sea-level, about 100 feet above the present sea-level, a large well-worked flint flake, to which were attached small specimens of marine shells! thus undoubtedly proving the high antiquity of the flake itself. This specimen has been sent to Vienna for Professor Mayer's inspection, on its way to the Museum at Owens College, Manchester.

R. P. G.

Mr. R. P. Greg exhibited several specimens of flint and bronze implements from Egypt and Greece; also an unusual form of bronze hammer-head from Dalmatia, *holed* like the stone ones from Scandinavia; also a bronze dagger from Egypt, with cartouches of Thothmes III, about 1450 B.C.; and a few pieces of the oldest Egyptian pottery, one of which was found embedded in bricks evidently used in the construction of the pyramid of Maydoun, dating from the end of the 3rd dynasty, about B.C. 3600.

DECEMBER 14TH, 1880.

EDWARD B. TYLOR, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following list of presents was read, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From Professor HAYDEN.—Bulletin of the U.S. Geological and Geographical Survey, Vol. V, No. 4.

From Professor AGASSIZ—Annual Report of the Curator of the Museum of Comparative Zoology at Harvard College for 1879-80.

- From the AUTHOR.—Essays on the Languages, Literature, and Religion of Nepál and Tibet. By B. H. Hodgson, Esq.
- Miscellaneous Essays relating to Indian subjects, 2 Vols. By B. H. Hodgson, Esq.
- From the ASSOCIATION.—Verhandlungen des Naturhistorisch-medizinischen Vereins zu Heidelberg. Neue folge Zweiter Band.
- From the SOCIETY.—Journal of the Society of Arts, Nos. 1462, 1463, 1464.
- Transactions of the Imperial Society of Naturalists, Moscow, T. XXVI, liv. 2, 3 ; T. XXXII, liv. 2, 3 ; T. XXXIX, liv. 1.
- Proceedings of the Royal Geographical Society, Vol. II, No. 12.
- Bulletins de la Société d'Anthropologie de Paris, Avril à Juillet, 1880.
- From the EDITOR.—“Nature,” Nos. 578, 579, 580.
- Revue Internationale des Sciences biologiques, No. 11, 1880.
- “Athenæum,” Part 635.
- Revue Scientifique, Nos. 22–24.
- Correspondenz-Blatt, December, 1880.

The election of the Rev. R. A. BULLEN was announced.

Mr. W. St. Chad Boscawen read a paper on “Hittite Civilisation.” A discussion ensued in which Mr. Bouverie-Pusey, Rev. Dunbar Heath, Mr. T. Tyler, Mr. Bertin, Mr. Hyde Clarke, Mr. Park Harrison, Mr. Alfred Tylor, and the President took part, and the author replied.

The papers to be read at the next meeting were announced.

JANUARY 11TH, 1881.

EDWARD B. TYLOR, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following list of presents was read, and thanks voted to the respective donors:—

FOR THE LIBRARY.

- From the AUTHOR.—Conscious Matter. By W. Stewart Duncan.
- Biographical Sketch of James Aitken Meigs, M.D. By George Hamilton, M.D.
- Introduction to the Study of Indian Languages. By J. W. Powell.
- Congrès International d'anthropologie et d'archéologie préhistoriques. Rapport sur la session de Lisbonne. Par M. Emile Cartailhac.
- Premier Age du fer, avec un Atlas. Par M. Ernest Chantre.

- From the AUTHORS.—*Monographie Géologique des Anciens Glaciers*.
2 Tom, avec un Atlas. Par MM. A. Falsan et E. Chantre.
- From the CONDUCTOR.—*The Scientific Roll*, Part I. Conducted by
Alexander Ramsay.
- From the MUSEUM.—*Das Museum Ludwig Salvator in Ober-Blasewitz bei Dresden*.
- From the SOCIETY.—*Journal of the Society of Arts*, Nos. 1465 to
1468.
- *Proceedings of the Royal Society*, No. 207.
- *Proceedings of the Royal Geographical Society*, Vol. III,
No. 1.
- *Journal of the Asiatic Society of Bengal*, Vol. XLIX, No.
245.
- From the ACADEMY.—*Almanach der Kaiserlichen Akademie der
Wissenschaften*, 1880.
- *Register zu den baenden 76 bis 80 der Sitzungsberichte
der Math. Naturwissenschaft. Classe der Kaiserlichen Akade-
mie der Wissenschaften*, IX.
- *Sitzungsberichte der Kaiserlichen Akademie der Wissen-
schaften. Mathematisch Naturwissenschaftliche Classe*:—
Erste Abtheilung, lxxxı Band, 1-5 Heft.
lxxxıı Band, 1-2 Heft.
- Zweite Abtheilung, lxxxı Band, 4-5 Heft.
lxxxıı Band, 1-2 Heft.
- Dritte Abtheilung, lxxxı Band, 4-5 Heft.
lxxxıı Band, 1-2 Heft.
- Philosophisch-Historische Classe*:—
xcvi Band, 2-3 Heft.
- From the PUBLISHER.—*Le Goniomètre d'inclinaison et d'orthogone
le goniomètre flexible*. Par Dr. P. Broca.
- From the EDITOR.—"Nature," Nos. 581-584.
- *Revue Scientifique*, Nos. 25, 26, 1880; Nos. 1, 2, 1881.
- *Revue Internationale*, No. 12.
- *Matériaux pour l'histoire de l'homme*, 1880, 8 et 11 liv.
- "Athenæum," Part 636.

Dr. W. R. HUGGARD was admitted a Member of the Institute.

Mr. J. Evans reported upon the proceedings of the Lisbon Congress of Prehistoric Archaeology and Anthropology, which he attended in the capacity of Delegate from the Institute.

Mr. G. M. Atkinson exhibited some stone celts from British Guiana.

Mr. J. Evans and Professor I. Jones took part in a discussion.

The President read a communication from Mr. F. F. Tuckett, on a supposed diminution in the size of heads during the last

quarter of a century, derived from the observations of a hatter upon his sales and stock.

In the discussion which ensued, Mr. J. Evans, Mr. Wallhouse, Mr. Crochley Clapham, and Dr. Huggard took part.

A paper by Mr. W. D. Gooch was read on "The Stone Age in South Africa."

A discussion followed in which the following gentlemen took part: Mr. E. B. Tylor, Mr. W. G. Smith, Professor Rupert Jones, Mr. A. Tylor, Mr. Rudler,—and the author replied.

ANNUAL GENERAL MEETING.

JANUARY 25TH, 1881.

EDWARD B. TYLOR, Esq., D.C.L., F.R.S., *President, in the Chair.*

The notice convening the meeting was read.

The Minutes of the previous Anniversary Meeting were read and confirmed.

The Treasurer presented his Financial Report for the year ending 31st December, 1880.

MISSRS. HARRISON :
 Discount on Printing Account £ s. d.
 Carriage of Parcel..... 8 12 3
 0 1 8

	£	s.	d.
Insurance	0	18	0
Carriage of Parcels.....	2	6	4
Carpenter	16	18	0
Packing	2	18	0
Miscellaneous	3	3	5
Reporting.....	50	8	2½
Valuing Ethnological Specimens	3	3	0
Purchase of Paintings of Tasmanians	2	5	0
House:			
Ayres, gratuity for 1879.....	15	0	0
" coals and lights	6	3	0
" assistance, &c.....	5	1	9
" refreshments	21	18	0
Purchase of £50 13s., 3½ Per Cent Stock.....	48	2	9
BALANCES:	42	0	0
Due for bookcases and publications sold ...	7	1	6
At Bankers'	99	17	6
In Office.....	3	1	6½
	110	0	6½
	£906	8	0

Audited and found correct.
 (Signed) RICHARD WORSLEY.
 A. L. LEWIS.

The President appointed General H. Clerk and Mr. Bertin scrutineers of the ballot.

Mr. E. W. Brabrook, F.S.A., Director, then read the following Report:—

REPORT of the COUNCIL of the ANTHROPOLOGICAL INSTITUTE of
GREAT BRITAIN AND IRELAND for 1880.

FOURTEEN ordinary meetings and the Anniversary Meeting have been held during the year 1880. At the ordinary meetings the following communications were read:—

1. Notes on the Jivaros. By Alfred Simson, Esq.
2. The Canelos Indians. By Alfred Simson, Esq.
3. The Cagots. By Dr. Hack Tuke.
4. On the Central South African Tribes from the South Coast to the Zambesi. By Dr. Emil Holub.
5. The Origin of the Plough and the Wheeled Carriage. By Edward B. Tylor, Esq., D.C.L., F.R.S., President.
6. On Ethnological Specimens from British Columbia. By Dr. F. Dally.
7. Visualised Numerals and other Forms of Mental Imagery. By Francis Galton, Esq., F.R.S.
8. On Nicobarese Ideographs. By V. Ball, Esq., M.A., F.G.S.
9. On a New Method of expressing Degree of Changes of Specific Form in the Organic World, especially referring to the Development of the Mind and Body of Man. By Alfred Tylor, Esq., F.G.S.
10. Notes on Fijian Burial Customs. By the Rev. Lorimer Fison.
11. Notes on the Polynesian Race. By C. Staniland Wake, Esq.
12. Further Notes on the Romano-British Cemetery at Seaford, Sussex. By F. G. Hilton Price, Esq., F.G.S., and J. E. Price, Esq., F.S.A.
13. On a series of Plans and Relics from Mount Caburn. By Major-General Pitt-Rivers.
14. Notes on Pre-historic Discoveries in Central Russia. By C. H. E. Carmichael, Esq., M.A.
15. Notes on the Occurrence of Stone Implements of the Surface Period in South Russia. By W. D. Gooch, Esq., M.A.I.
16. Notes on the Western Regions. By A. Wylie, Esq.
17. Jade Implements from Switzerland. By Hodder M. Westropp, Esq.
18. Flint Implements from the Valley of the Bann. By W. J. Knowles, Esq.
19. The Stone Age in Japan. By John Milne, Esq., F.G.S.
20. The Japanese People. By C. Pfoundes, Esq.
21. Camps on the Malvern Hills. By F. G. Hilton Price, Esq., F.G.S.
22. Religious Beliefs and Practices in Melanesia. By the Rev. R. H. Powell, Esq.
23. Objects from New Britain and New Ireland. By Wilfred Powell, Esq.
24. On Two Skulls from Patagonia. By Don Francisco P. Moreno.
25. The Aborigines of Victoria. By Peter Benrbridge, Esq.
26. On a Collection of Crania from the Fiji Islands. By Prof. W. H. Flower, F.R.S.
27. Land Tenure in Fiji. By the Rev. Lorimer Fison.
28. Welsh Customs and Legends. By Rev. R. F. Kilvert.
29. Classification of Languages on the Basis of Ethnology. By Gustav Oppert, Esq.
30. On the Asiatic Shoreline of the Hellespont. By Frank Calvert, Esq.

31. Note on a Stone Implement of Palæolithic Type found in Algeria. By Sir John Lubbock, Bart., F.R.S.

32. On Flint and Bronze Implements in the Nile Valley. By R. P. Greg, Esq.

33. On Anthropological Colour-Phenomena in Belgium and elsewhere. By J. Beddoe, Esq., M.D., F.R.S.

34. On Different Stages in the Development of the Art of Music in Prehistoric Times. By J. F. Rowbotham, Esq.

35. On Neolithic Implements in Russia. By Prince Paul Poutiatine.

36. Observations on the Methods and Processes of Anthropometry. By Dr. Paul Topinard.

37. On the Origin of the Malagasy. By C. Staniland Wake, Esq.

38. Hittite Civilisation. By W. St. Chad Boscawen, Esq.

Sixteen Ordinary Members have been elected during the year.

The Institute has lost through death: Mr. W. Napier, Mr. J. H. Challis, Mr. W. W. Collins, Mr. A. Hamilton, Lieut.-Col. J. J. D. Heath, Mr. T. J. Laing, Mr. H. B. Churchill, and Dr. Paul Broca, Honorary Member.

The former and present state of the Institute with regard to the number of Members are shown in the following Table:—

	Honorary.	Compounders.	Annual Subscribers.	Total.
January 1st, 1880 ..	49	88	309	446
Since elected .. ..	..	+ 3	+ 13	+ 16
Since deceased	—1	—1	— 6	— 8
Since retired .. ..	..	..	—14	—14
January 1st, 1881 ..	48	90	302	440

The following are the names of the donors to the Library during the past year:—

Dr. Barnard Davis; Dr. Paul Broca; Dr. E. Jarvis; E. R. Thompson, Esq.; Dr. Paul Schumacher; Prof. Agassiz; James Bonwick, Esq.; Lieut. R. C. Temple; W. Frazer Esq.; E. W. Brabrook, Esq.; E. S. Morse, Esq.; J. H. Rivett-Carnac, Esq.; Garrick Mallery, Esq.; Dr. W. J. Hoffman; W. Eassie, Esq.; Dr. Emil Schmidt; Dr. Emil Holub; Prof. Ecker; J. B. Good, Esq.; Mrs. Chaplin Ayrton; Signor Paolo Mantegazza; C. Roberts, Esq.; C. F. Gatty, Esq.; Don F. P. Moreno; Herr Moriz Benedikt; A. J. Conant Esq.; Prof. W. H. Flower; Hyde Clarke, Esq.; Prof. Virchow; Herr W. Von Schulenburg; Dr. C. Cesare Taruffi; B. Quaritch, Esq.; W. Osborne, Esq.; Rev. W. W. Gill; Dr. G. Oppert; Dr. Beaumanoir; A. L. Lewis, Esq.; Prof. E. Morselli; Dr. Paul Topinard; M. Ernest Chantre; W. Pengelly, Esq.; Brian H. Hodgson, Esq.; A Ramsay, Esq.; W. S. Duncan, Esq.; M. A. Falsan; Dr. G. Hamilton; J. W. Powell, Esq.; M. Emile Cartailhac; Acade-

nia Nacional de Ciencias de la República Argentina ; Kaiserliche Akademie der Wissenschaften, Wien ; British Association ; Geologists Association ; Royal United Service Institution ; Royal College of Physicians ; Koninklijke Akademie van Wetenschappen, Amsterdam ; Hungarian Academy ; Government of New Zealand ; American Association for the Advancement of Science ; Académie Impériale des Sciences de St. Pétersbourg ; Royal Institution of Cornwall ; Trustees of the Astor Library ; Academy of Sciences, Kracow ; Royal Historical and Archæological Association of Ireland ; Kaiserliche Leopoldino—Carolinische Deutsche Akademie der Naturforscher ; Trustees of the Peabody Museum ; Museu Nacional do Rio de Janeiro ; S.E. M. le Président de la Commission Impériale Archéologique ; Kongelige Danske Videnskabernes Selskab ; University of Tokio ; The Secretary of the Anthropological Exhibition of Moscow ; State Board of Health, Mass. ; United Service Institution of India ; National Association for the Promotion of Social Science ; Agent General for South Australia ; Royal Colonial Institute ; New Zealand Institute ; Foreign Office ; Bataviaasch Genootschap van Kunsten en Wetenschappen ; Smithsonian Institution ; Berwickshire Naturalists' Club ; Devonshire Association for the Advancement of Science, Literature and Art ; Naturhistorisch—Medizinische Verein, Heidelberg ; Museum Ludwig Salvator in Ober-Blasewitz bei Dresden ; Society of Arts ; Royal Asiatic Society ; Société Impériale des Naturalistes de Moscou ; Oberhessische Gesellschaft für Natur-und Heilkunde ; Royal Society ; Royal Geographical Society ; Asiatic Society of Bengal ; Geological Society of Glasgow ; Royal Society of New South Wales ; Society of Antiquaries ; Gesellschaft für Anthropologie, Ethnologie und Ungeschichte, Berlin ; Society of Antiquaries of Scotland ; Anthropologische Gesellschaft, Wien ; Société de Borda, Dax ; Société de Géographie, Metz ; American Philosophical Society ; Société d'Anthropologie, Paris ; Royal Society of Tasmania ; Society of Biblical Archæology ; Manx Society ; K. K. Geographische Gesellschaft, Wien ; Asiatic Society of Japan ; Royal Society of Victoria ; Deutsche Gesellschaft für Anthropologie, Ethnologie und Ungeschichte ; Royal Dublin Society ; Leeds Philosophical and Literary Society ; Königliche physikalisch-ökonomische Gesellschaft ; The Editor "Nature," The Editor "Revue Scientifique," The Editor "Revue Internationale des Sciences biologiques," The Editor "Matériaux pour l'histoire de l'homme," The Editor "Athenæum," The Editor "Revue d'Anthropologie," The Editor "American Antiquarian," The Editor "Annuaire des Spécialités Médicales et Pharmaceutiques," The Editor "Rocky Mountain Medical Review," The Editor "Correspondenz Blatt."

The Council have had under grave consideration throughout the year the condition and future of the Library and Museum. Both are essential to the thorough teaching of anthropology, and the Council would have been happy if the resources of the Institute had been equal to the task of acquiring and maintaining in due efficiency, a library, a craniological collection, and an ethnographical museum. The facts have been, however, that while by several munificent gifts at the time of the establishment of the Anthropological Society of London, and by others made since, a valuable library has been acquired, which some attention to the filling up of lacunæ in various departments may render increasingly useful to the Anthropological student, and while the Institute has a most valuable collection of skulls and skeletons, it has on the other hand never succeeded in collecting an ethnographical museum of any educational value. A few articles, not unfamiliar to the visitors to any large ethnographical museum, such as weapons, dresses, models, &c., have been

presented to the Society at various times, but while they have occupied much wall space in the rooms of the Institute, and thus cramped the library, they are neither sufficient in number nor capable of arrangement in any order complete enough to serve the purpose intended. Upon a careful review of the whole of the circumstances, therefore, the Council have resolved that it would be the wisest course for the Institute to devote all spare funds to the enlargement of the Library, and to maintain the collection of skulls and skeletons, but to give up the attempt, which they are convinced would be a hopeless one, to establish any sufficiently large and comprehensive ethnographical museum.

Their view was confirmed by the independent professional opinion of a valuer nominated by an eminent firm, who estimated the value of all the ethnographical specimens referred to at only £45. It appeared clear that if, after so many years of desultory collection, the objects gathered were worth so little, it would not be likely that any further efforts in the same direction would be rewarded. It was also evident that the objects themselves, small as their intrinsic value was, and useless as they were in the rooms of the Institute for any purpose of teaching, might, if incorporated in some of the National Collections, become of real value to the comparative Anthropologist. The Council resolved, therefore, subject to the approval of this Meeting, to accept two offers, amounting together to £54, or £9 more than the valuer's estimate, viz.: one of £14 from Mr. Franks, curator of the Christy Collection, for the Burmese gong, and one of £40 from Major-General Pitt Rivers for the other objects, with the view of their being ultimately deposited at South Kensington. With these funds it is proposed to acquire books for the Library, which will require, when extended, the whole of the wall space set free by the removal of the weapons, &c. Already several fresh shelves have been erected, the Library has been carefully rearranged, and a draft catalogue prepared, which has been printed in slip to enable members of the Council, and other members interested, to point out additions that would be desirable, and to offer suggestions. The Council are confident of the hearty concurrence in these steps of every member who has had occasion to use the Library or to visit the Museum, and those who have not hitherto had occasion to do so will, it is hoped, be convinced by what has been urged that the steps recommended by the Council is conducive to the real interest of the Institute. The Council think it a matter, however, which in the words of the regulations is one that ought to be brought by them before the Annual Meeting for the consideration of the members, and it is so brought forward accordingly.

The PRESIDENT then delivered his Annual Address :—

In the present active state of our science, the attempt to give a general account of the Anthropological books and papers of the year would expend my hour in a heavy bibliographic catalogue. I will rather select for remark a few prominent topics.

The Anthropologists of the United States show increasing activity in investigating the native tribes within their borders, while something of genuine native custom and belief still stands out against invading civilization.

The Bureau of Ethnology of the Smithsonian Institution publishes an "Introduction to the study of Indian Languages," by its Director, Major J. W. Powell. For the guidance of all persons brought into contact with the native tribes, it gives a careful account of the philological points to be looked out for; and apart from this use, it has a philological value of its own. The Bureau of Ethnology also issues Lieut.-Col. Garrick Mallery's "Introduction to the Study of Sign-Language among the North American Indians, as illustrating the Gesture Speech of Mankind," which has been followed by a "Collection of Gesture-Signs of the North American Indians," printed only for distribution to collaborators, with whose aid a full and final work on the whole subject is eventually to be published. Former information as to the sign-language of the American wilds was scanty as compared with the present elaborate collection of signs, which are described with great care, and even illustrated by drawings of the position of the hands and the movements of the arms in making the gestures. Among interesting American signs may be mentioned that for "stone," where the closed fist of the right hand hammers the palm of the left, a clear relic of the time (not long past) when the only hammer was a stone. As an example of the several variant signs current in different districts to express one idea, may be taken those for "horse;" sometimes made by the fore and middle fingers of the right hand, astride the edge of the left hand, like a man riding; sometimes with the two closed hands imitating a

gallop; sometimes by the thumb and two first fingers joined at the tips, and held horizontally, while the fourth and little finger somewhat separate, so that the whole hand gives a fair representation of a horse's head with the ears. For an instance of the way in which gestures originally carrying an evident meaning may become abbreviated, so that a stranger cannot understand them, may be mentioned the sign for "old man" which a Cheyenne made by holding his right hand forward, bent at elbow, fingers and thumb closed sidewise. When he saw that Colonel Mallery did not understand him, he took a stick, bent his back, and completed the sign into the figure of a tottering old man leaning on a staff. Lastly, one instance may be cited from what may be called the grammatical part of the gesture-language, how one can show in signs the connection between two persons or things or actions, which in speech we express by the conjunction *and*. When seen, it is the simplest thing possible. For instance, the knuckle of the right hand struck smartly into the hollow of the left means "shot," and the two hands falling over means "killed;" then if these two signs follow sharply on one another, this makes a conjunction between them. So with the phrase, "the white men *and* I," the white men are expressed by the hand across the forehead to indicate the hat, and this sign is followed sharply by pointing to oneself to connect the two. Though the principle of the gesture-language is the same everywhere, whether among the wild hunters of the prairies or the deaf and dumb of our asylums, and, indeed, any human beings can make shift to communicate with one another in gestures at first sight, yet strangers to a great extent will use different signs, which will only be intelligible so far as they take their sense straight from nature. People who have got into the habit of using conventional or abbreviated signs among themselves, must get out of this habit, and return to the simpler imitation to be universally understood. I say this more especially because of a passage in my "Early History of Mankind," where, fifteen years ago, I brought forward the gesture-language as a subject throwing much light on the working and history of the human mind.

In speaking of the gesture-language of America, I observed that "the same signs serve as a medium of converse from Hudson's Bay to the Gulf of Mexico." Colonel Mallery takes exception to this, as liable to encourage the mistaken notion that the sign-language is identical throughout the Continent, whereas, in fact, no two tribes would use precisely the same "dialect," so to speak. Colonel Mallery, in another place, admits that when the passage is taken together with others, my remark must mean that the sign-language of different tribes is (what he and all who understand the subject know to be the case) the same in principle, notwithstanding divergence in detail. Still the passage is liable to mislead, through careless wording, and I intend in a future edition to make it more clear. The collection of gesture-signs from the American district is now altogether fuller than in any other wild region. Something has been done in Australia, especially in Brough Smyth's work on the "Aborigines of Victoria," and it is to be hoped that the circulation of these Smithsonian publications will cause the collection of sign-language in such districts as Polynesia. The study of the gesture-language of the deaf-and-dumb is not just now flourishing. The general introduction of articulation and lip-reading, while beneficial to the deaf mutes themselves, is tending to discourage the native converse by gesture-language. However, losing this is not to lose the evidence for science, for the forms of the gesture-language are implicated in human nature, and will always spring up afresh when circumstances favour. It is satisfactory to notice that Prof. Steinthal's dissertation on the "Language of the Deaf and Dumb," written thirty years ago, is just republished in the collection of his minor writings.

The Smithsonian Institution also publishes an "Introduction to the Study of Mortuary Customs among the North American Indians," by Dr. H. C. Yarrow, as a guide to those who have opportunities of making further observation and record among the indigenous tribes. It not only serves this purpose, but is of value to the Anthropologist as a collection of burial customs, for those of America are wonderfully varied, including most which

are known anywhere in the world. The most frequent kinds may be mentioned. Burial in the ground is common, often with wood over the body to prevent the earth from pressing on the corpse. Collection of the bones after the flesh has rotted away, and their preservation in ossuaries of the tribe, is often met with. Tree and scaffold burial, when the corpse is put up in a tree or on a platform out of the reach of wild beasts, and protected by basket work or a canoe-coffin, prevails across the continent. Cremation appears especially among the western tribes. The Nishinams of California have a legend of its introduction, as if they thought it not always the custom. In cist-burial, where a box or chamber of stone slabs protects the body, this may be the stone inner chamber of a mound or cairn, as in the Old World. Mummies, whether by natural drying or more artificial preparation of the corpse, are common. Urn-burial is not unknown, when the bones, or such as are not consumed on the funeral pile, are kept in earthen pots. The Caddos expose their dead warriors to be devoured by wild beasts like the old Persians. The cannibal practice of eating the dead is among the few funeral rites absent from this district of the New World. Among details specially worthy of remark is the Aleutian custom described by Dall, in vol. i. pp. 83-89 of the "Contributions to North American Ethnology," published by the United States Survey of the Rocky Mountain Region. In the large communal dwellings or yurts, where the inmates entered by the hole in the roof, descending by a notched upright beam, and the space within was divided around into compartments like the state cabins of a steamer, the dead were sometimes enclosed in the apartment they had occupied while living, which was filled up with earth, while the other inmates remained in their rooms. This mode of burial in the communal house has been already noticed in relation to the chambered tumuli of England. Dr. Yarrow quotes Professor Whitney's account of the skulls from the cave in Calaveras County, near the Stanislaus River, not unknown to comic literature; it appears to have been a modern Indian burving place, and the skulls were not buried in the stalagmite

but lay on its surface. Dr. Chesney gives a curious account of a Sioux practice of disposing of the dead man's effects by what he calls a "ghost gamble." The property being divided into lots, one Indian represents the ghost, and the others play against him; when one wins a lot of the goods he goes off with them. This gambling is now done with the white men's cards, but in old times the ghost play was done with the marked plum stones, which, as I have elsewhere pointed out, the northern Indians probably got from the marked beans of the Mexican *Patolli*, itself an Asiatic game.

An account of an Indian mound-interment may be mentioned, by Dr. J. Mason Spainhour, in North Carolina, who says that this remarkable burial will convince every Freemason that the American Indians were in possession of at least some of the mysteries of the order, and that it was evidently the grave of the three highest officers of a Masonic Lodge. The grave was situated due east and west, an altar was erected in the centre, the south, west, and east were occupied, the north was not; implements of authority (stone tomahawks) were near each body. This may be mentioned here as an example of the way in which old customs suggested by nature (such as burying towards the cardinal points) having found their way into Freemasonry, are fancied by zealous disciples of the craft to have originated there. Only lately statements have been made about Masonic signs among the natives of Australia; when we are told precisely what these signs were, we may possibly be able to account reasonably for the savages using them.

Having mentioned vol. i. of the "Contributions to North American Ethnology," it may be added that vol. iii. has been issued, last year, the portly quarto on "Tribes of California," by Stephen Powers. Among its many facts, notice may be taken of one which appears in the first chapter, the use by the Károks of the Klamath River of a sharp stone gripped in the hand as the ordinary native weapon, armed with which an Indian "will face a white man and give him a handsome fight." It seems very likely that the hand-gripped stone implements of the Drift

Period, especially those where one end is left for grasping, may have been in habitual use in this way. In speaking of the same tribes the utterance of a dead relative's name is noticed as the highest crime one can commit; it is the highest insult to the survivors, and may be atoned for by the same amount of blood-money as is paid for wilful murder, or they will revenge the insult by the utterer's blood. Their reason for this very common practice of not speaking the dead man's name is explained here: "At the mention of his name the mouldering skeleton hears in his grave and moans." We know how difficult savages find it to suppose even a corpse utterly dead, and may well believe that they think the corpse will be disturbed by hearing his name. Among the details blood-money was just mentioned. This "Indian money" is red scalps of woodpeckers, or strings of the dentalium shell. Rude as this currency is, the idea of payment has so thoroughly entered into the native mind, that the only legitimate marriage is purchase by strings of shells; a woman not thus bought is a degraded outcast. Not to go further into this important book, nor to do more than mention other reports of the United States Geographical and Geological Surveys as containing much Anthropological information, I am bound to add a remark neither pleasant to make nor to hear. While on the United States side so much labour and cost is expended in investigation and record of the indigenous tribes, why do not we receive documents of similar value from the Dominion of Canada? There native tribes are numerous, and the Canadian Government and the Hudson's Bay Company may claim the merit of undertaking their practical management, preserving them with a kindly hand, and setting them to such occupation as they will take to. But they seem behind our other Colonial possessions, such as New Zealand and Australia, in the sense that the minute record of native tribes is a valuable contribution to human knowledge, the materials for which must be collected now or lost for ever. Surely if the remissness of British North America in dealing with its Anthropological material is clearly made

apparent, a wholesome rivalry with the United States may stir those in authority no longer to lay themselves open to the charge of want of intelligence and public spirit in this respect.

In the Berlin "*Zeitschrift für Ethnologie*" (vol. xi) have lately appeared two articles of great interest to students of the zoological history of man. Dr. Barttels collects cases of extreme hairiness (hypertrichosis) in man. Notably among these are the hairy Birmese family, and, among Europeans, the hairy family of Ambras, so called from their portraits being at the castle of Ambras, near Innsbruck. Dr. Siebold has treated of these latter in the "*Archiv für Anthropologie*" (vol. x), but Dr. Barttels has gone further in their identification. There are portraits of the family at Vienna, recognisable as the same, while in them there is no extenuation of the beast-like appearance given by the shaggy hair, which in the Ambras portrait was softened down. The father, who in the Vienna catalogue goes by the name of the "hairy man of Munich," or "hairy baron of Munich," and who lived about 1550-1600, is wonderful for the hairy coat which covers his face, and has to be combed upright off his forehead to keep it out of his eyes; and his hands are equally shaggy. His wife, who sits by him, seems an ordinary good-looking German woman, but the two children inherit the father's type. The boy holds an owl, to which his brushed-hairy countenance shows an absurd likeness. Some other portraits are recorded as having come some years ago into the hands of a London bookseller, F. S. Ellis, and Dr. Barttels asks if they can be traced in England. The hairy man of Munich and his family appear to be the group described by Felix Plater in 1583, who says he married a smooth woman (*mulier glabra*), and had two hairy children. If they are the same, we know from his account what would be inferred from the face and hands, that the hair covered the whole body. Cases like these, and others described by Dr. Barttels, will aid in the study of hairiness as a race-character, and in working out the relation of man to progenitors whose plentiful hairy coating contrasted with the meagre remnants of body-hair in our smoother race, such as the slight tuft on the back of

the fingers. The other contribution is from Dr. Ornstein, Surgeon-General in the Greek Army, who sent a photograph of a soldier, with a distinctly-formed tail. The original, Nicolas Agos, of Livadia, aged 26, came in July last before the medical inspection and was passed as a recruit; as he turned to leave the room, there was noticed a perpendicular prolongation of the tapering end of the coccyx, projecting about an inch from the level of the skin, and which could be felt about an inch further in. It is not a case of *spina bifida* (as in the photograph of a Hindu child sent me by Mr. Lawson Tait), but a real tail; and Dr. Ornstein's strong expressions as to its bearing on the development-theory do not seem exaggerated. There is reason to believe that there are always a few tailed men of this kind living, but authenticated and published specimens of *homo caudatus* are rare in the extreme.

Professor Steinthal goes into the question of relation between Australian languages and others of the world. Bleek thought he saw in them traces of connection with the Bantu group of South Africa, while Caldwell traced a connection (also propounded by Norris), with the Dravidian languages of South India. Steinthal, after careful examination, pronounces both theories unsound, and the Australian language-family independent. He points out, what might be adduced as evidence in the opposite direction, that there exists in Australia a vowel-harmony comparable with that so often remarked on as characterising the Mongolian tongues, a root with *a e i* vowels taking an *i* suffix, while a root with *o u* vowels takes an *u* suffix. Analysing the structure of the Australian sentence, Steinthal pronounces its free form quite incompatible with the fixed Mongolian forms to be found in Yakut or Hungarian. He notices a curious Australian point of formation, that real words such as things, persons, qualities, actions, begin with a consonant, whereas grammatical forms or suffixes begin with a vowel, which is unlike Bantu or Dravidian. The possession of an accusative marks the Australian as different from any but Caucasian languages. The forms are often very peculiar, thus

have is difficult to express ; “ in-not-my-hook ” signifies “ I have no hook.” Though their numeral system is poor, he thinks their type of speech higher than either Kafir or Dravidian, and considers their low state degenerate from defective subsistence. Among the many other topics discussed in the “ *Zeitschrift für Ethnologie* ” may be mentioned Dr. Jagor’s visit to the Kanikars, in the Palamcotta District of South India. He found their tree-dwellings (of which he gives sketches) deserted for some years past, but the people feared they might have to resort to them again from the increase of tigers and elephants near their settlements. The villages of these Kanikars show how low barbarous tribes passing into agricultural life tend everywhere to organise society on a socialistic basis ; they cultivate jointly, and divide the crops according to the numbers of each family. All the archaeologists of Germany seem to be puzzling themselves over the origin of cup-markings in the old church walls, for which a wonderful variety of origins are suggested, even that they are bullet-marks. On the curious subject of ancient trepanned skulls a quantity of evidence is given. Professor Virchow’s remarks on characteristics of skulls of low races is too extremely technical for me to venture on giving an account of it. The study of the development of the colour-sense has been active in Germany ; but, so far as I can make out, is hardly yet completely enough worked out for a summary of results. Dr. Rabl-Rückhard suggestively draws notice to the fact that, while such distinction as between blue and green are most inexact among the lower races, attention is concentrated on red, which most strongly affects their emotions. No doubt it is true, as the writer points out, that our otherwise irrational scarlet uniform has an extraordinary effect in terrifying the minds of barbaric enemies, related to its corresponding effect in stimulating the courage of those who wear it.

Dr. Arthur Mitchell’s “ *The Past and the Present : What is Civilization ?* ” raises several interesting questions as to the survival of early arts and ideas in the neighbourhood of modern culture. Travelling in the highlands and islands of Scotland,

he was struck to see peasants of some education finding a summer lodging in those buildings of ancient type, though sometimes of modern date, the bee-hive houses, domes built of converging layers of rough stones and covered with growing turf. There, too, he noticed fragments of pottery unglazed, and not thrown on the wheel; and afterwards he made the acquaintance of an old woman who keeps up this pre-historic art, nowadays perhaps more for the tourist to buy as a specimen of modern barbarism than for serious competition with Staffordshire. Dr. Mitchell found the spindle in use in several districts, not many miles from factories with their improved machinery; while, in districts where it has gone out of use for a few generations, it has been so forgotten that, when the spindle-whorls are picked up, they are kept as "adder-stones" for charms. Dr. Mitchell insists on the real and important argument that low arts do not always prove low capacity, for there are often practical reasons why they should be kept up. No doubt there is economy in the old women filling up with the spindle (as in France and Switzerland) hours which would otherwise be wasted. And there are districts where it would not pay to send corn 20 or 50 miles to be ground by the best machinery, so well as to grind it at the rude Norse water-mill on a brook, or let the women grind it in the old-fashioned quern at home. All this and much more evidence forms for Dr. Mitchell a theory of civilization opposed to the prevalent mode of measuring it by industrial arts, and looking rather at general conditions of well-being. The view that he adopts, that civilisation is the opposing force to natural selection, doubtless has a true side to it; the weak and helpless, who in lower culture would perish in the struggle for existence, are in the higher culture preserved and helped. There does not seem anything really antagonistic in this to any well-considered and guarded theory of evolution of civilisation, for the preservation of weak, but in some respects valuable members of society is the act of a well-organised corporate body doing its best for itself. Dr. Mitchell's frontispiece of the cripple on the blind man's

back, as a type of civilisation, may serve to illustrate this view. In low culture only the individuals who are capable all round will survive, but in high culture, those who can see but not walk, or walk but not see, are cared for by the organised society, for though incomplete they are valuable. One of the best points in this suggestive book is the author's description of the outcast tinkers living in the Hawick caves, in some respects low and brutal as savages, though by profession belonging to the Iron Age. His weakest point is his taking, as rough and savage, implements and arts which are really much advanced: thus the hand-quern is a machine only known to civilised nations, and the spindle, simple as it is, represents a great advance beyond spinning thread between one's hands like the New Zealanders do. I must not give the inference that Dr. Mitchell resists in any thoroughgoing way the doctrine of development in culture, and he does the fullest justice to the survivals from ancient stages of barbarism to be found in Scotland;—the holy wells and rag-bushes; the burying of a live cock, still occasionally practised as a cure for epilepsy; the prohibition of iron and matches when the sacred fire was carried round the fields; and the curious persistence with which the mourners at a funeral, no longer having to bury the dead under a cairn, still build a little conical one $\frac{1}{4}$ feet high at the place where the funeral procession halts.

Prof. Ray Lankester's lecture on "Degeneration" to the British Association, Sheffield, 1879, since published in the "Nature" Series, though its purpose belongs to general Biology, has a special bearing on Anthropology. Its argument is to bring into view the importance in the history of life of those forms where the tendency has not been toward increased elaboration, but falling off in organisation takes place, as where the animal, becoming parasitic or fixed, obtains its food without hunting for it. Then legs, jaws, eyes, ears degenerate away, and the active crab or insect becomes a mere sac, absorbing nourishment and laying eggs; or the swimming nauplius fixes its head against a piece of wood, and becomes a barnacle with organs of touch and sight atrophied, and legs only serving, as it were, to kick its

food into its mouth. It is a just comparison that human civilisation, being in like manner subject to the laws of evolution, has its phases of degeneration as well as of progress.

As we know, the arguments on early and barbaric marriage laws as throwing light on primitive society have long been going on, and since the first mutual criticism of Mr. McLennan and Mr. Morgan on the relative claims of their schemes to reconstruct the early social condition of man, a certain acrimony has found its way into the discussion. Perhaps this may have distracted some minds from the purely scientific study of the problem into partisanship of one or other side. But, on the other hand, it has given liveliness to a somewhat difficult and technical discussion. The public does not object to these argumentative contests, probably with a well-founded feeling that they thus avoid being put helplessly in the hands of a single school of thinkers who praise and back one another. A warm personal controversy secures the public, that what is advanced on either side will be sharply criticised on the other; indeed, that when theorists fall out, students will come by their own. Among recent works of importance in the problem of primitive society is the volume by Fison and Howitt on the Kamilaroi and Kurnai tribes of Australia, with special reference to their laws of marriage and descent. Though this is Mr. Fison's first systematic work on the subject, he has long been engaged in its study. Indeed, it was he who obtained, years ago, the curious statement of Mr. Lance that the intermarrying groups of Australia were actually united in a kind of limited communal marriage. This statement became one of the foundations of Mr. Morgan's ideal scheme of the development of marriage, in his "*Ancient Society*." Mr. Howitt is the well-known Australian explorer. Both Fison and Howitt, brought up, so to speak, in Morgan's school, remain, in most respects, disciples of his. For my own part, I may express an opinion, which I fancy will be shared by many students, that while McLennan, Lubbock, and Morgan have contributed much to the solution of the obscure problem how primitive society was

organised, they neither singly nor jointly have yet untied all the turns of this complex knot. They have all come by different methods to look to an original system of what has been called communal marriage. But as to the steps by which the transition was made to more developed institutions, there is great difference of theory. In some respects it seems to me that the new evidence in this book tends to modify the previous conclusions. The alleged effect of female infanticide in bringing on capture of wives is not supported by the evidence from Australia, where the children abandoned are as often boys as girls, for girls as food-gatherers are as valuable to the tribe as lads. The view that communal marriage was broken up and exogamy brought on by capture, which for the first time gave the warrior an individual property in a wife, may, perhaps, be squared, but not quite easily, with the Australian rule in some tribes that a man may not have a wife when he has captured her, unless she is of the class he is bound to marry into. On the other hand, Fison's ingenious arguments seem often too ingenious. He attempts to account for the widespread custom of avoiding the mother-in-law by the fact that she, being of the same class with her daughter, would be theoretically her own son-in-law's wife, which awkward combination is prevented by the two utterly avoiding one another. It is not easy to see, however, why this should cause the man to avoid his father-in-law also, which he does in Australia and all over the world. The great fundamental difficulty of the whole matter lies in the explanation how men, beginning with what Morgan calls the consanguine family, where marriage was unrestricted, moved into a more advanced stage. Morgan treats the change as an early but most important reform in society to restrict this state of things to more limited marriage, excluding the nearest blood-relatives: and Howitt takes much the same view. But the question is, how could man in a state of extreme rudeness be considerate and politic enough to become conscious of the evil and the remedy? We must ask for more perfect explanation before receiving such a theory as proved. No man knows a savage's mind better than Fison does, and he is

so impressed with the difficulty savages would find in taking such a step, that he calls in supernatural aid to help them. In fact he falls in with the ideas of the Dieri natives, who have a myth that the tribe becoming sensible of the evils of breeding-in, the old men called on the Great Spirit, who told them to divide the tribe into branches, each with a different clan or *murdu*, and to cause a man not to take a wife of his own *murdu*. Mr. Fison will not, perhaps, gain many adherents in explaining savage institutions by ordinary natural processes as far as possible, and then, because he finds a problem too hard, bringing in a supernatural cause, which thus is degraded into a result of the enquirer's ignorance. But one cannot more strongly put the difficulty of the problem than by seeing that it has driven a writer so ingenious in devising natural explanations, to abandon the attempt. I have spoken at some length of this volume, regarding it as a new move in a discussion of early society which will lead us far before we have done with it. But it is abstruse and difficult in the extreme, and I hope to deal with it fully and with the necessary care and reservation at some future time, and would ask that the present remarks, made to call attention to it, may not be themselves criticised as a deliberate move in the controversy.

I have now to make brief mention of our own papers during the past year. On the ground which the French Anthropologists regard as Anthropology proper, namely, the physical study of man, our most important contribution is Professor Flower's account of the skulls of the Kai Colo, or mountaineers of Fiji, the most dolichocephalic of mankind, with an index of 66. Many of us who are not profound anatomists, though sensible of the general value of skull-measurements as bearing on race, have been apt to think their study in the hands of craniologists running into unprofitable minuteness and complexity of observation. But no one could have heard Professor Flower's paper without feeling that the results of minute comparison are justifying themselves when they come to be generalised. The systematic regularity with which various skull measurements

show themselves capable of being traced by numerical averages from these pure-bred Kai Colo to the mixed coast-tribes, is an instance of arithmetical determination of race which is a great step towards making Anthropology an exact science. To our eminent foreign associate, Dr. Topinard, we owe a valuable set of instructions for process of body-measurement, a difficult task for the inexperienced hands of the non-medical traveller. Though our science has lost Broca, a loss of which we have already spoken to-night, the French Anthropological Society will doubtless continue to move on the lines of investigation which that distinguished man did so much to start it upon. Dr. Beddoe contributes an account of "Anthropological Colour-Phenomena in Belgium," &c. The specimen of a stone implement of palæolithic type from Algeria, exhibited by Sir John Lubbock, brings the problem of the antiquity of man into a new district. Mr R. P. Greg adds to our knowledge of the early civilisation of Egypt, by a paper giving new localities where flint flakes are found; but more worked implements, such as scrapers and hatchets, are scarce, as if the flakes were carried away for finishing. Stone celts are very rare in Egypt, probably, in Mr. Greg's opinion, from the early use of bronze, with respect to which he also remarks on the absence of the flanged and socketted celts so common in Europe, as separating our bronze age from the early bronze age in Egypt. He also mentions apparently palæolithic implements as found by Mr. Calvert on the Dardanelles. Mr. Hodder M. Westropp, in a paper on "Jade Implements found in Switzerland," disputes the Asiatic origin of the stone, but without referring it to any precise European locality. The question is interesting as bearing on pre-historic trade-routes. Mr. Carmichael gives an account of Poliakoff's pre-historic researches in West Central Russia, and Mr. W. D. Gooch describes the stone implements of the well-known black-earth level met with in the steppes of South Russia. He mentions the great number of burial mounds and the mysterious stone figures which have long puzzled antiquaries; these, he says, are now degraded to gate-posts.

Mr. Gooch, in a paper on "The Stone Age in South Africa," attempts to refer the implements to several geological periods, beginning with implements of palæolithic type in glacial beds, and following on to the modern alluvial period. This first attempt to divide the Stone Age and connect it with geology in Africa is likely to lead to important results. We have also information on pre-historic finds and stone implements in Russia, by Prince Paul Poutiatine. Mr. W. J. Knowles' "Flint Implements from the Valley of the Bann" notices some peculiar tongue-shaped implements from split pebbles, and tangled heads for fish spears of remarkable rudeness. The problem of the antiquity of the "Stone Age in Japan," especially as determined from the shell-mounds, is treated in an important paper by Mr. J. Milne, who considers that the period from pre-historic to modern times is represented in these rubbish-deposits. The newer archæology of our own country is represented by the notes on the "Romano-British cemetery at Seaford," by Mr. Hilton Price and Mr. J. E. Price; and on "Camps on the Malvern Hills," by Mr. F. G. Hilton Price.

Dr. Gustav Oppert's paper on "A classification of Languages on the basis of Ethnology," is an outline of a scheme of division founded on distinction between "concrete" and "abstract" languages, which is more fully described in the author's work on the subject.

Mr. Francis Galton's paper on "Visualised Numerals," has excited great interest, with its set of diagrams of the forms in which the numbers arrange themselves before the "mind's eye" of those who have this peculiarity, which I am, perhaps, a competent person to appreciate from my absolute want of any trace of such a faculty. A surprising amount of evidence now comes into view on this interesting point in the history of mind. I will only mention a neighbour of mine, Dr. Meredith, of Wellington, who tells me he has for many years amused his friends by giving them sheets of paper to draw the set of numeral figures as they see them. His own mental diagram is a little hill and valley line, suggested, he thinks, by the Welsh

landscape of his childhood. Mr. Alfred Tylor's paper on a "Method of expressing Change of Specific form in the Organic World," dealt especially with the problem of ornamentation, working out with a fine series of diagrams the principle that ornament is the manifestation of real structure. The meeting which heard the paper considered that this theory at least met one of the most important causes of ornamentation, whether in the designed patterns of man or the contour and markings of animals.

The well-known African explorer, Dr. Holub, gave us a valuable discourse on "The Central South African Tribes." He is sure that the famous ruins of Monomotapa were the work of no tribe at present found in South Africa. The shape of the blocks of granite, narrowing inwards, and with a curved outer face, which were put together without cement, reminds one of the Peruvian masonry. A striking contrast to these old fortifications are the present Koranna dome-huts of branches covered with mats. Of Mr. Fison's Australian researches I have already spoken at so much length, that as to his two papers read before us this year, on "Fijian Burial Customs" and "Land Tenure in Fiji," I will only say that their extraordinary accuracy makes them valuable evidence for future writers on early institutions. When the paper on "Religious Beliefs and Practices in Melanesia," by the Rev. R. H. Codrington, is printed, it will be found to contain a minute account of an almost unexplored district of theology. We have by this time become used to finding complex and interesting religions among tribes, whom superficial travellers have remarked on as people from whose minds all ideas of deity and worship were absent.

Mr. Calvert's paper "On the Asiatic shore-line of the Hellespont," where he adduces evidence that the sea has long been encroaching on the land, has archæological interest with regard to the site of Troy. It will be found printed in the "Ztschr. f. Ethnologie," with remarks by Prof. Virchow. Mr. Howorth gathers together from the Byzantine historians and other sources the evidence of "The Spread of the Slavs and Bulgarians." Mr. Wylie gives from a Chinese authority, the Tseen Han Shoo,

a quantity of documentary records on the Western Regions, of which the anthropological value lies in mentions of old national divisions and characters. One of our last meetings heard a discourse by Mr. Boscawen on "Hittite Civilisation," which treated of the evidence which has of late brought this ancient nation into prominent notice. But, both as to their inscriptions and their history, much has to be done before the anthropological place of the Hittites can be exactly fixed.

Mention should be made of "Nicobarese Ideographs," by Mr. Valentine Ball, and Mr. Pryer's communication on "Tribes of North Borneo." Mr. Peter Bembridge's paper on "The Aborigines of Victoria" is founded on close personal knowledge of native tribes on the Murray River and elsewhere, and details of interest are given as to marriage relations, kitchen-middens, &c. It has been generally considered that the cookery of the aborigines did not include boiling, but the author mentions coming on a party of natives not yet at all Europeanised, and finding that they had been boiling shrimps in a wooden vessel put on hot ashes. He also describes their spinning opossum fur into string with a spindle, and it will be desirable to ascertain whether (contrary to general opinion) there is any reason to suppose this instrument was known to them before contact with Europeans. The descriptions of native medical treatment by the sweating-bath, bleeding, &c., are also of interest.

Mr. Staniland Wake's "Notes on the Polynesian Race" corrects a popular misapprehension as to the brown Polynesians being almost beardless; he also discusses the use of the bow and arrow in Polynesia, arriving at what I believe is the most usual opinion, that it came with them from Asia, though in some islands (as the Tongan) it has come down to mere sport like rat-shooting, and in others (as in New Zealand) it has disappeared altogether. The same anthropologist has made a new trial at the vexed problem of the "Origin of the Malagasy." Mr. Rowbotham's paper on the "Development of Music in Prehistoric Times" deals with the sequence of the musical stages marked by the drum, the pipe, and the harp, and the connection of this

progression with the development of melody and harmony. I have given evidence and argument on the "Origin of the Plough and Wheel Carriage," attempting to trace these great instruments of civilisation stage by stage,—the plough from the rude hoe made from a bough with a pointed side-branch, the wheel carriage from the trunk of a tree used as a roller.

It is to be hoped that the Institute may have in a publishable form the remarkable anthropological facts from New Ireland, of which Mr. Wilfred Powell gave a verbal account. Much the same may be said of Dr. Dally's remarks on articles exhibited from British Columbia. The mysterious pictures of eyes, &c., on the canoes, huts, and other objects, appear not to be mere decoration, but to have a picture-writing significance, which, now that attention has been called to it, may, it is hoped, be found and recorded before it dies out.

In now resigning this chair to an already tried and successful President, General Pitt-Rivers, it may not be inappropriate for me to express a hope that his Museum of Weapons, which illustrates so many problems in his History of Civilisation, and has been already in its collector's hands so fertile a source of new ideas, may in some shape become a national institution. It is not a small duplicate of the national ethnographic collection of the British Museum, but something of different nature and different use. It is not so much a collection, as a set of object-lessons in the development of culture, and the student whose mind is unprepared to visit intelligently the British Museum collection, may gain by preliminary study of the Pitt-Rivers collection an idea of development which will be a natural framework for further knowledge. He will know better what to look for in the vast galleries of the British Museum, and how to appreciate its meaning when he sees it. It only remains for me to thank the office-bearers and other members of this Institute for the indulgence which they have given to my attempt to discharge the duties of President under many disadvantages, among them that of living at a distance too great to allow of my attending all the meetings and committees.

ANTHROPOLOGICAL MISCELLANEA.

A HORNED AFRICAN FAMILY.

(From a Dublin Correspondent.)

At a meeting of the Royal Irish Academy in this city on Monday, Sir Robert Kane, F.R.S., presiding, Professor O'Rieley read a letter from Dr. Macalister in which he says: "Some years ago my friend Dr. Minchin, showed me the enclosed photograph brought home by his son, the late Dr. R. Minchin, and informed me that the man depicted belonged to a family somewhere in West Africa, and that they were famous as executioners, and all the family had the same horns, some bigger and some less. I made a large number of inquiries among my acquaintances, residents of the West of Africa, and got very little satisfaction until Dr. Allen, on a former visit, discovered that these people lived at Akim, and confirmed the particulars brought home by Dr. Minchin. In one other case which I have heard described the horns are on the molar bone, and projecting external to the eye. In the photograph sent by Dr. Minchin, the horn is maxillary, and is an outgrowth of the front border of the floor of the orbit. I have no African skull showing any approach to this peculiarity of organisation." In a letter of the 26th February, 1881, written by Dr. Allen, of Bathurst, West Africa, to Dr. Macalister, the writer says: "You will recollect that Captain Hay (now in Tobago West) had stated he had seen these men at Akim. He had one of the men *en route* for England, but he refused to proceed eventually, Captain O'Brien saw this man at Elmina, and he describes him as follows:—"He was, as regards physique, colour, hair, &c., similar to an ordinary native. The horns occupied the molar region—were about 2 inches in length, their direction being, I believe, from the description, upwards, outwards, and forward, non-movable, and covered with skin." An inspection of the photograph shows that the technical description of "the horns" on the molar bone projecting external to the eye, might be expressed in another form by simply saying that on either side of the nose, and below each one there is some sort of an excrescence, amounting to a deformity, just as much as a round foot is a natural deformity, and that it is rather an abuse of terms to apply the word "horn" to it. Dr. Frazer said they should be indebted for the communication, and that an effort should be made to ascertain whether this deformity was a disease or an occurrence of a racial character.

BUSHMAN CAVE PAINTINGS AND STONE IMPLEMENTS.

Low as is the grade of the Bushmen's intellectual culture, they have the very wonderful art of decorating the rocky walls of their dwellings with representations of quadrupeds, tortoises, lizards, snakes, fights, hunts, and the different heavenly bodies. The drawings that are made inside the caves are chiefly upon sandstone in ochre of various colours. I succeeded in getting several of the curious tools, consisting simply of triangular pieces of flint, with which the outlines of the engravings are cut; these are likewise used for several domestic purposes. Another implement not uncommon among them was a heavy stone fastened to the thicker end of a pointed stick, sometimes 3 feet long, though occasionally not more than half that length, its use being either to dig up roots, or to make holes in search of water. Stones, it may be mentioned, are not unfrequently found on which the engraving had only been partially made, and where there had been an attempt to obliterate the design. In some cases the objects are indicated only by lines of shading, while in others they are chiselled entirely out of the rock. These last are the most striking of all, and I believe that the 18 specimens I brought home with me from Wessel's farm are unique in Europe. Amongst the subjects are the bust of a Bushman, a woman carrying a load, an ostrich with a rider on its back, an ostrich meeting a rhinoceros, a jackal chasing a gazelle, but many are single figures of cows, gnus, and antelopes.—("Seven Years in South Africa," by Dr. Emil Holub, Vol. II, pp. 438-9.)

STRANGE FUNERAL CEREMONY IN THE TONGA ISLANDS, SOUTH SEA.

THE day after the death of a Tintonga (the chief Tongan family), which was the day of the burial, every individual in every island the news had reached,—man, woman, and child,—had the head closely shaved. In the afternoon the body being already in the *fytoea*, or burial-place, the men, women, and children all bearing torches, sit down at about 60 yards from the grave. Two men from behind the grave now begin to blow conch-shells, and six others with large lighted torches, about 6 feet high and 6 inches thick, descend from the raised *fytoea*, and walk round one after the other several times, waving their flaming torches in the air.

After this ceremony these six leaders descended the mount again, and the moment they did so, the people advanced *en masse*, and following the six leaders with the big torches ascended the mount in single file. As they passed the back of the grave, the first six men deposited their extinguished torches on the ground, an example which was followed by the others. The ground was then cleared, the people separated and went to their respective homes.

Soon after death, certain persons stationed at the grave began again to sound the conch, while others chanted, partly in Samoan, a sort of song. The natives could give no account of what the other language was, nor how they came origi-

nally to learn the words. While this was going on, about 60 men would assemble near the grave for the performance of a ceremony, which, I suppose, has no parallel in the burial rites of the world. It being perfectly dark, the men would approach the mound, and pay their devotions to the goddess Cloacina, after which they retired to their homes. At daybreak next morning, all the women of the first rank, the wives and daughters of the greatest chiefs, would assemble, and with expressions of the profoundest humility, would make the place perfectly clean, and this extraordinary ceremony was repeated for fourteen nights, as was that of the burning torches.—(“Coral Lands,” by H. Stonehewer Cooper, Vol. II, p. 159.)

CELTS FROM BRITISH GUIANA.¹

THE place of the celt in the History of Culture is well understood by the members. I merely wish to record the existence of some varieties in the forms shown by six specimens from British Guiana. I regret I have not the information that would be desirable as to the exact circumstances of their finds to put before the members.

They were forwarded from Demerara by Mr. W. S. Turner, who collected them, to my friend Mr. A. G. Geoghegan, who has kindly allowed me to lay them before the Institution.

Two of these, ground or polished celts, were found in a kitchen-midden at Warramuri, on the Moruca, a river which runs into the sea side by side with the Pomeroon. Their outlines present a very different appearance. One is long and thin, widening towards the cutting adze-like edge, and with slight projecting ends to enable it the better to be fastened to its haft. It resembles specimens from the West Indian Islands. The second is very much decomposed on the surface. The cutting edge is fractured, showing it has done some service. The notches in the sides near the end are very deep, and it has a flat, or slightly grooved, end, as if it was hafted flat against the handle. There is an indication of a similar flatness on all these specimens. The notches at the sides, and projecting ends, is a peculiarity of South American Celts. Another specimen is not so rectangular in section. It looks like a wedge.

The small celt (very like a Venezuela specimen—the form is a very general one) was obtained from an Arcowais Indian, on the Essequibo River. It would be interesting to know how he used it, if hafted, or as an amulet.

Mr. F. W. Rudler has kindly examined these implements. He informs me they are formed of varieties of diabase, more or less decomposed superficially. The small polished, black-coloured implement from the Essequibo River is made of a fine grained doleritic rock. All these materials are the ordinary eruptive rocks of that country.

28, St. Oswald's Road, S.W.
January 18, 1881.

GEO. M. ATKINSON.

¹ See proceedings of January 11th.

THE INTERNATIONAL CONGRESS OF PREHISTORIC ARCHEOLOGY AND ANTHROPOLOGY AT LISBON.¹

MR. JOHN EVANS gave a short account of this Congress, at which he had been present in the capacity of Delegate from the Institute. For all detailed particulars he referred to the *Compte-rendu* of the Congress, which will shortly be published, but he gave some particulars of two of the excursions. One of these was to Mujem, on the banks of the Tagus, to view some interesting kjökkenmöddings of much the same general character as those in Denmark, at the base of which, however, were numerous interments of human bodies laid in a contracted position. The other was to Otta, to inspect the beds in which it was thought that traces of man living in Miocene times had been discovered. This discovery had been accepted as authentic by many members of the Congress, but Mr. Evans had not been satisfied as to the undoubtedly human origin of the single bulbs of percussion on the flints, nor as to their actually forming integral parts of the beds in or on which they were found, nor as to the geological antiquity of the beds themselves. On most of the flints the bulbs were such as might have arisen from natural shocks, and there was no sign of the flints themselves having been used. Others apparently belonged to the surface, and were of no great antiquity. The sands and gravels of Otta, though probably of Tertiary origin, appear to have been disturbed at a later period, as their surface forms a plateau of considerable extent, and at a lower level than the undisturbed Miocene beds containing remains of *Hipparion*, &c., which in some parts form the border of the plateau.

The Museums in Lisbon were next noticed, and Mr. Evans called attention to the abundance of arrow-heads found in Portugal which are barbed, but without a central tang, and to a number of lance-heads polished on each face, but chipped at the edges. He also mentioned the discovery in Spain of a bronze halberd-blade, with three long rivets, much resembling an Irish blade figured by Wilde, and recommended those who assigned an Iberian origin to some of the ancient inhabitants of Ireland more closely to examine the facts indicated.

¹ See Proceedings of January 11th.

I deeply regret to announce that my friend David Greig Rutherford, who joined this Institute in the year 1876, died in West Africa in the early part of this year, during a Natural History Expedition to that country. Had his life been prolonged there is little doubt that Anthropology, to which he was much attached, would have acquired many new facts from the interesting region of West Tropical Africa. As it is, such of his notes which were found after his decease as appertain to our science I have reproduced here, supplemented by extracts from a letter I recently received from him.

W. L. DISTANT.

NOTES ON THE PEOPLE OF BATANGA.

THE language spoken by the Batangas is simply a dialect of the Dualla, more or less corrupted by an infiltration of words from the neighbouring tribes speaking different languages. The inflection of words is sometimes very strongly marked, *e.g.*, *sui*, a fish, becoming *hui*, the aspirate being very decided. and *wea*, fire, being pronounced *veya*. Gradually, as we get nearer Cape St. John, the importation of foreign words becomes more marked, until we lose sight of the Dualla element altogether, about the neighbourhood of the Rio Muni, where it is replaced by the language of the Corisco tribe and its dialects. At Batanga there is a small town called Bapoko, or Bapook, containing a few members of the Makoko tribe, who still continue to speak their own language.

The Duallas appear to have settled at various places along the coast, from Camaroons southwards, as traders, but at no place have they penetrated more than thirty miles inland. Behind the line of coast occupied by the Batangas are scattered the villages of what are called the bushmen, or people belonging to the Mabava tribe, who trade with another tribe further inland, called the N'gumbas, for the ivory they sell to the Batangas, who, again, dispose of it to the European traders. The N'gumbas themselves are only traders, and buy the ivory from other inland tribes, such as the M'pongwas, the Yaunder, and Bulis. The Mabayas tell the Batangas that the elephants from which the ivory is taken are killed by an enormous bird, and that they only venture under cover of night to where the bodies are in order to obtain the tusks.

The physique of the Batangas is in all essential characters the same as that of the Duallas. Some allowance, however, must be made for hereditary influences derived from intermarriage with the inland tribes. The men are well formed, many of them being over the average height, they are lithe and free in their mien and bearing, and are strongly without being stoutly built. These characteristics, not so commonly met with among the same race further north, are, I am inclined to think, due to the more active habits which during early life are imposed upon them by the necessity of acquiring skill

in fishing at sea during a certain number of hours nearly every day, and during the best part of the year. The Jaubus fish well, but not the Duallas. The Batanga Duallas are, however, an exception, and they have acquired no little skill in the art, which is practised, with rare exceptions, with hook and line, net-fishing not being practicable on account of the heavy surf which usually beats upon the beach. They begin to learn the art in early boyhood, and in many cases practise it till long after manhood is reached. The first thing they are taught is the use of the canoe, and in this they are trained almost from their infancy. The canoes most in use are mere thin shells, formed from a certain hard reddish wood, and vary from 6 to 10 feet in length by $1\frac{1}{2}$ to 2 feet in breadth. A triangular board, about 1 foot in length, fixed at each end imparts a certain strength to the frail craft; and five seat-like bars, at nearly equal distances apart, fastened inside to the upper edges by strong cord, also serve the same purpose. Upon the middle bar the fisherman sits, sometimes with both legs in the water, and with one paddle propels and guides his canoe rapidly through the water. That the use both of canoe and paddle requires great skill, and its attainment long practice and much perseverance, is shown by the early age at which the natives begin to learn how to manage them. Children, scarcely able to toddle, may be seen mimicking with their little hands the motions of a paddle, and it is an ordinary thing to see young boys sitting in front of their houses fashioning models of canoes out of pieces of soft wood. When they are eight or nine years old, or sometimes earlier, they are provided with small canoes about twice their own length, with a small paddle, and partly from imitation and partly owing to inherited skill, they soon learn how to sit and balance themselves in their tiny crafts, and paddle themselves about in shallow water. After a time they become more venturesome, and push boldly out among the breakers. Should they get swamped, as in nine cases out of ten they do, they are greeted by the jeers of their companions, but should they get over the rough to the quiet water beyond, they are hailed with shouts of applause. When they have acquired sufficient skill, they are allowed to venture out to sea with fishing lines, and learn the art of fishing as best they may. Every morning, almost immediately after day-break, scores of people, old and young, may be seen hurrying down to the beach from the various villages carrying or dragging their canoes with them. If there should happen to be little surf, they launch them at once into the water, arrange their lines, and paddle off to their favourite grounds; but if the water is rough they content themselves first of all by getting the canoe into the shallows, and waiting until the heavier waves have rolled in. The canoe is then dragged over the surf and the man, by a dextrous leap, mounts astride it, until he has balanced himself, then, drawing his legs inside, he, by vigorous strokes of his paddle from right to left, urges it forward over the approaching breakers. If he has delayed a moment too long, or miscalculated his distance, he may

be caught by the first wave and swamped, and canoe and all sent ignominiously rolling shoreward, to the great amusement of the spectators on the beach, who on an unusually bad morning, gather in crowds to witness the departure of the fishermen, and who do not fail to reward any luckless attempt with ironical laughter. Should he, however, succeed in surmounting the first wave, with, perhaps, the only mischance of taking in some water, the which however he can quickly remove by a backward movement of one of his feet, he either advances bodily to the second, or, should it seem too much for him, quickly turns round and paddles back until it has broken, when facing round again, he meets the next wave in the same way. This he may have to do again and again till the favourable chance in a pause in the regular movement of the waves occurs, when, seizing advantage of it, he paddles out safely beyond the reach of the breakers. The same care, skill, dexterity, and close observation of the movements of the waves is necessary on returning to the beach. Advancing continuously till just outside of the breakers, he awaits the approach of an unusually large wave, which he allows to carry him shoreward, and, by vigorous paddling, keeping well behind it, until its crests begin to foam, when he quickly turns round, paddles back, and waits for the next wave. Guessing his distance and deciding that this one will take him right on to the beach, he allows it to carry him, but holds his canoe back as it breaks, and then over the surging surf paddles himself safely and triumphantly into shallow water. But not all are so successful. Many canoes get swamped, and sometimes damaged, and fish and fishing lines lost. They remain fishing for about six hours and seem to take to their work industriously. I have counted as many as a hundred canoes out of a single morning; and as the population of Batanga is by no means large, I calculate that the majority of the male adults are more or less engaged in this occupation. There cannot be a doubt that such work, requiring so much endurance, hardihood, and skill must have a lasting effect upon the right development of the bodies and the minds of these people. They are certainly among the most intelligent of the Dualla race, and I have seen none that excel them in point of physique. They do not, however, occupy themselves with fishing throughout life. With the approach of manhood, a Batanga begins to think of trading, for trading means making money, and money the buying of a wife. According as he succeeds in his trade, so is his natural tendency to greed developed, and his desire to be *somebody* strengthened. He takes more care of his outward appearance, puts on a shirt in addition to his loin-cloth, and when by dint of a more than usually successful speculation in ivory, he is able to don a felt hat, he considers himself a gentleman, and begins to look out for a wife. Having succeeded in getting one, he wants another, and another, till according as his domestic cares increase so the development of his manhood decreases. European commerce with Africa may have made the negro richer, but it has not made him wiser. It has only enabled him to indulge to a

greater extent than he did before in his hereditary vices and degenerate tastes. It may be said that in Africa, as elsewhere, money, without education and the knowledge how to use it, not for self and personal aggrandisement, but for the good of the community, or for the happiness and future welfare of the race, is an unmitigated curse.

Regarding the Batanga women I can say very little. They are derived chiefly from the neighbouring tribes, and in all respects are inferior to the men. The more well-to-do men appear to choose their women for their good looks, but some do not evince much taste in their selection. I have observed, however, that the more intelligent of the chiefs who have chosen wives as much for their good sense as their good looks, have usually rather intelligent children; and it sometimes happens that such men have married women who have been educated to some extent as well as trained to some industrial pursuit. Provided the girl has been gifted with good sense there cannot be a doubt regarding the beneficial effects of such a marriage, not only upon the family, but also upon the tribe. It is certainly better for educated African women to marry intelligent men of their own race than to hire themselves out as prostitutes to white traders; and were there more of such unions there would be less of that social demoralisation which exists at Gaboon, Fernando Po, and other places on the coast.

Among the Batangas I noticed three kinds of games,* one a species of backgammon, which, from what I could gather, is derived from some of the neighbouring tribes, probably from those further south. I have not found it among the Duallas of the Camarcons. It is usually played by men and youths. The second game is played by boys, and I have seen something similar to it further north. The boys take the broken half of a wooden basin, and placing it on the ground squat down, generally three boys in a row, on each side. They are provided with a number of small shells of a species of *Achatina*, shaped something like a top, and about an inch and a half long. One boy spins his shell on the inside of the half basin, and another on the opposite side follows suit. The spinning is done very cleverly, and exhibits not a little skill. As one spinning shell meets the other, the stronger drives the other out, and its owner forfeits it to the winner, whose turn it now is to spin to the shell of the next boy in the opposite row. And so he spins on until he either loses or gains in succession all the shells in the party; if he loses, another takes his place and goes on in the same manner. Of course, the game is almost interminable. The third game I have to mention is also played by boys. A number of them cut a transverse slice off the stem of a plantain tree, so as to form a disc about a foot in diameter, and about 2 inches in thickness, and, providing themselves with sharp-pointed sticks cut from the outer

* In a letter addressed to me, Mr. Rutherford remarks: "What a strange error Winwood Reade must have fallen into when he committed himself to the statement that the Guinea Negros have no games. Amongst the Batanga branch of the Duallas, I found no less than five."—W. L. D.

covering of the mid-rib of the frond of a species of palm, they repair to the beach, where the retiring tide has left a slope of hard wet sand. Here they divide themselves into two parties, each forming a row about 10 feet apart. Facing each other, with the smooth sandy beach sloping downward between them, the topmost boy of the right hand row sets the disc running down the middle. Every boy then throws his stick at the soft disc as it runs, and whoever hits it counts one to his side. A certain number of hits makes up the game, and whichever side reaches it first wins.

Another amusement I have observed at Batanga among the boys is the construction of a small flat boat with wheels and a sail which they place upon the smooth sand, and watch it propelled by the wind. Some years ago I observed some boys at Brass River amusing themselves in precisely the same manner.

GEOPHAGY.

A SOMEWHAT curious instance of this custom came before me at Batanga in May 1880; and subsequent enquiry has enabled me to throw some light upon it. From what I could gather while at Small Batanga, the custom seems to prevail all along the coast as far as the island of Corisco, where I believe it is also known, and perhaps it extends further south.¹ I met with it first at Babani, where there occurs a deposit of yellowish red clay, containing about 15 per cent. of iron and a considerable quantity of mica and some quartz particles, but there is evidently a large quantity of organic matter in it. This clay is made up into balls of about 5 inches in diameter, and baked over a slow fire. When quite dry, and ready for use, a small portion is broken off, and placed in the hollow of any smooth leaf and reduced to powder between the finger and thumb. The leaf is then gently shaken in order to cause the harder and more gritty particles to fall aside. These are carefully removed, and the residue, consisting of a fine powder, is transferred to the mouth, masticated, and swallowed. I was informed that the men use it while on a long journey, when they do not wish to stop in order to cook food. As, however, they seldom travel far without carrying something in the way of provisions that can be eaten readily, this scarcely accounts adequately for the origin of the custom. Some enquiries made at Camaroons elicited the following additional information. The custom is known there, but does not exist to the same extent, or in the same manner as at Batanga. The material used is a very dirty earthy clay, with but little iron and no mica, and is derived from a deposit on the banks of the rivers. When baked in the sun it becomes very hard, and, indeed, is sometimes used in the construction of houses. The men sometimes, but seldom, eat it, but I am told the women, during the time of pregnancy, when they are supposed to be assailed by very

¹ On the Gold Coast, according to Winwood Reade, a white clay is frequently chewed or drunk in solution, the young people taking it as a sweetmeat, and the old people as a medicine.—W. L. D.

unnatural appetites, use it largely. Is it the result of inheritance, or merely from the force of imitation, that the custom is almost universal among the Camaroons children? I am told that all of them eat it, even those belonging to the mission, who are well fed, and are strangers to the sensation of hunger. By way of test, I showed some of them a small piece of the Batanga earth. They looked at it for a moment as if to make sure of it, then eagerly besought me to give them some. I gave them what I had in my hand, and they greedily swallowed it, afterwards expressing a desire that, as the kind I had given them was so nice, they would like some more. These children had just supped, and their evident appreciation of the clay could, therefore, hardly be connected with hunger, and would seem to indicate an appetite, or at least a liking, however unnatural, not much related to the desire for food. One of those children, I was informed, usually took a piece of the clay to bed with her, but this child, though well-fed, was always hungry.¹

TATTOOING.

THIS custom has evidently originated in certain marks being applied to the face and other parts of the body, in order to distinguish the members of one tribe from those of another. The same marks would be used for both sexes, but as the tendency to ornamentation became developed, they would be apt to observe some artistic method in making them. Among the Duallas, the custom at one time appears to have obtained with both sexes, with a preponderance, however, in the practise of it on the side of the women. The men did not always see the force of giving themselves needless pain, but the women, with a shrewd idea that it added to their charms, persisted in having it done. The *men* (and it is significant that in places where the men have ceased to tattoo themselves they continue to do it for the women) tattooed their children at an early age, but as the girls approached a marriageable age, they added, on their own account, various ornamentations to those already existing. As an example that tattooing in its later stages is regarded as an increase of beauty, I may mention an instance given me by

¹ Mr. James Orton in "The Andes and the Amazons" bears strong testimony to a like practice of this habit in Tropical America. "This habit is not confined to the Otomacs on the Orinoco, nor to Indians altogether; for negroes and whites have the same propensity." At Pebas "Mr. Hauxwell found it impossible to restrain his own children." On the Marañon "the half-breeds are mostly addicted to the practice of dirt eating." "Even strangers, English or the white Peruvians who have married with the *Mestizos*, and have had children by them, finds its presence among their little ones the plague of their life." Children commence the habit from the time they are four years old, or less, and frequently die from the results in two or three years." Officers here who have the Indian or half-breed children as servants in their employ, sometimes have to use wire masks to keep them from putting the clay into their mouths; and women, as they lie in bed sleepless and restless, will pull out pieces of mud from the adjoining walls of their room to gratify their strange appetite, or will soothe a squalling brat by tempting it with a lump of the same material.—W. L. D.

the wife of a missionary here. A woman belonging to some neighbouring tribe having come to stay at the mission was presented with a dress of some showy material as an inducement to her to discard the loin cloth she had been in the habit of wearing, and as an introduction to the habits of civilised life. She objected to wear the dress, however, upon the ground that if she did so she would thereby hide her beauty. It appears certain that the unmarried woman who is most finely tattooed wins most admiration from the men. Since, through the exertions of the missionaries, a certain amount of refinement has been introduced into Camaroons, the custom is gradually disappearing, chiefly owing, I understand, to the men ridiculing it, another proof that its continuance among the women was dependent upon the admiration of the men.¹

FOLK-LORE.

AMONG the Duallas, a cock which crows during the night is instantly killed. It has recognised an evil-spirit passing the house, and has invited it to enter, and do some damage to the inmates.

If a man, on going to his work in the morning, sees a certain bird fly across his path, he returns home.

If starting on a journey by canoe, a man meets or sees a hippopotamus, and it gapes at him, he defers his journey.

If a man meets a chameleon, and it gapes at him, he returns home, expecting some misfortune to happen to him or his friends.

Wherever the chameleon is found, it is regarded, with feelings of dread. At Sierra Leone I once found some boys pelting with stones one which they had discovered crossing the path, and was endeavouring to find shelter among some herbage. On taking it up in my hand, I was loudly besought to throw it away, else I should die; and their amazement was great indeed, when, instead of doing so, I tied it securely in my handkerchief and put it away in my pocket. I was followed by a crowd of boys, evidently expecting to see me suddenly expire in agonies. The people of Angola have the

¹ Oscar Peschel, who describes tattooing as "another substitute for raiment" also remarks: "That it actually takes away from the impression of nudity is declared by all who have seen fully tattooed Albanese." But as bearing on Mr. Rutherford's view, we may quote Mr. Darwin, "*Voy. Beagle*," who when at New Zealand speaking of the clean, tidy, and healthy appearance of the young women who acted as servants within the houses, remarks: "the wives of the missionaries tried to persuade them not to be tattooed, but a famous operator having arrived from the south, they said, 'We really must have a few lines on our lips, else when we grow old, our lips will shrivel, and we shall be so very ugly.'" That tattooing is not always an adornment to women may be cited Captain Forbes', "*British Burma*." Among the Chyin (one of the "Wild Tribes") "is the practice of tattooing the faces of their women while young. This is not a slight line or spot here and there to serve as a beauty mark; but the whole face down to the lower bend of the jaw is completely covered, as with a black mask, with a tattooing of close transverse lines, in marked contrast with their natural yellow skin; and a more hideous disguise cannot be conceived. They can afford no satisfactory reason for this custom."—W. L. D.

same unreasoning fear of this harmless lizard ; and I well remember my sensations on being, while travelling in a hammock near Ambrizette, suddenly dropped upon the hard ground by the men who carried me, they having seen a chameleon cross the path ahead of them. Among the Abo people and the Bakokos of Dibamba the same superstitious ideas prevail ; and when I wished to have my house to myself, I found I would get rid of obtrusive guests by placing a chameleon above my door, and so long as it was there, no one dared enter. No other reptile inspires the same kind of fear. They appear to regard it with a mixture of ordinary fear and superstitious dread, both of which may be occasioned by the sudden changes of colour, and the threatening attitudes it assumes when excited. That the assumption by a harmless creature of colours and attitudes intended to produce fear is quite successful, I need only point to the facts of protective resemblance. Many caterpillars excite the same feeling, and though the natives frequently bring them to me, I never saw them handle any of them, and they have frequently expressed their surprise at the ease with which I did so myself.

INDEX.

A.

- Absaroka Myth, 239.
Africa, Dr. Emil Holub on South African Tribes, 2.
Algeria, Stone Implements found there, 316.
Andamanese, Professor Flower on their Stature, 124.
Annual General Meeting, 433.
Anthropological Miscellanea, 124, 231, 358, 459.
Anthropometer, 218.
Anthropometry, Dr. Paul Topinard on Methods and Processes of, 212.
Atkinson, G. M., 431.

B.

- Ball, V., on Nicobarese Ideographs, 103.
Batanga, Notes on the people, 463.
Beddoe, J., on Anthropological Colour-phenomena, 374.
Bembridge, P., on the Aborigines of Victoria, 332.
Bertin, G., 430.
Bidder, G., 96, 97.
Boscawen, W. St. Chad, on Hittite Civilization, 430.
Bouverie-Pusey, S. E. B., 316, 430.
Brabrook, E. W., Memoir of Dr. Broca, 242.
Broca, P., Memoir of, 242.
Bullen, Rev. R. A., 430.
Burial Customs, Fijian, 137.
Bushman Cave Paintings and Stone Implements, 460.

C.

- Caburn, Mount, plans and relics, 137.
Calvert, F., 332.
Camps on the Malvern Hills, 319.

Carmichael, C. H. E., Notes on pre-historic Discoveries in Central Russia, 358.

- 153.
Cave Paintings, 460.
Chang Ke'en, 66.
Chastleton Camp, 124.
Ch'in Tang, 49.
Clapham, Crochley, 432.
Clarke, Hyde, 315, 332, 424, 430.
Codrington, Rev. R. H., on Religious Beliefs and Practices in Melanesia, 242, 261.
Colour-blindness, percentage of persons affected by, 86.
Colour-phenomena, Dr. Beddoe on Anthropological colour-phenomena in Belgium, 374.

D.

- Dally, Dr., 74.
Demon's Claws, 230.
Dickins, F. V., 83.
Distant, W. L., 462.

E.

- Ethnology of Germany, Part V, 174.
Evans, J., Report on the Proceedings of the Lisbon Congress of Pre-historic Archaeology and Anthropology, 431, 462.
— 432.
Exhibitions: Ethnological objects from British Columbia, 74; photographs of Australian Aborigines, 85; ethnological objects from New Britain and New Ireland, 332; skulls from Patagonia, 332; flint and bronze implements from Egypt, 429; stone celts from British Guiana, 431.

F.

- Farrer, J. A., 1.
Felkin, R. W., 332.
Fiji, Land Tenure in, 332.

Fiji Islands, Professor W. H. Flower on the cranial characters of the natives, 153, 332.

Fijian Burial Customs, 137.

Fison, Rev. L., notes on Fijian Burial customs, 137.

— Land tenure in Fiji, 332.

Flint Implements from the Valley of the Bann, 150.

— of the Nile Valley, 332, 424.

Flower, Professor W. H., on the Stature of the Andamanese, 124.

— on the cranial characters of the natives of the Fiji Islands, 153.

— 332.

Folk-lore, 469.

Funeral Ceremony in the Tonga Islands, 460.

G.

Galton, F., on Visualised Numerals, 85.

Geophagy, 467.

Germany, Mr. H. H. Howorth on the Ethnology of, 174.

Gill, T., exhibition of Photographs of Australian Aborigines, 85.

Gladstone, J. H., 74.

Gooch, W. D., Notes on the occurrence of Stone Implements in South Russia, 352.

— Stone Age in South Africa, 432.

— 1, 153.

Greg, R. P., on Flint and Bronze Implements in the Nile Valley, 332.

— on Neolithic Flint Implements of the Nile Valley and Egypt, 424.

H.

Harrison, J. Park, 137, 332, 430.

Heath, Rev. Dunbar, 430.

Henslow, Rev. G., 96, 100.

Hodgkin, T., 1.

Hodgson, Brian H., 424.

Hoffman, W. J., an Absaroka Myth, 239.

Holt, R. B., 230.

Holub, Emil, on the Central South African Tribes from the South Coast to the Zambesi, 2.

Horned African family, 459.

Howorth, H. H., on the Ethnology of Germany, Part V, 174.

Huggard, W. R., 124, 431, 432.

I.

Ideographs, Mr. V. Ball on Nicobarese, 103.

International Congress of Prehistoric Archaeology and Anthropology, 462.

J.

Jade Implements found in Switzerland, 359.

Japan, Mr. J. Milne on the Stone Age in, 389.

Japanese People, Mr. C. Pfoundes on their origin, and the Race as it now exists, 225.

Jeremiah, J., on the alleged existence of Scythe - chariots in Ancient Britain, 127.

Jones, Professor R., 431, 432.

K.

Keane, A. H., 19, 123, 332.

Kilvert, Rev. R. F., on Welsh Customs and Legends, 332.

Knowles, W. J., on Flint Implements from the Valley of the Bann, 150.

L.

Lankester, Professor E. Ray, 332.

Leith, E. T., 129.

Lewis, A. L., 137, 315, 379.

Logan, D., 332.

Low, H. B., 241.

Lubbock, Sir J., on a Stone Implement found in Algeria, 316, 332.

M.

Malvern Hills, Camp on the, 319.

Martin, R. B., 100, 332.

Meetings, ordinary, 1, 73, 84, 102, 108, 129, 149, 224, 241, 331, 371, 423, 429, 430.

Melanesia, Rev. R. H. Codrington on Religious Beliefs and Practices in, 261.

Members, new, 1, 74, 129, 241, 332, 374, 424, 430, 431.

Milne, J., on the Stone Age in Japan, 389.

Moreno, F. P., exhibition of two skulls from Patagonia, 322.

Music, Mr. J. F. Kewoatham on the art of, 380.

N.

- Necrology, 231.
 Nicobar Islands, authorities on the, 106.
 — geological structure of the, 107.
 Nicobarese Ideographs, Mr. V. Ball on, 103.
 Nile Valley, Mr. R. P. Greg, on Flint and Bronze Implements from the, 332.
 — Mr. R. P. Greg on Neolithic Flint Implements from the, 424.
 Numerals, Mr. F. Galton on visualised, 85.

O.

- Oppert, G., on a Classification of Languages on the basis of Ethnology, 332.

P.

- Pfoufoues, C., on the Japanese People, 225.
 — 230.
 Pitt-Rivers, Major-General A., exhibition of plans and relics from Mount Caburn, 137.
 — 122, 331, 332.
 Plough, Mr. E. B. Tylor on its origin, 74.
 Polynesian Race, Mr. C. S. Wake on the, 109.
 Poutiatine, Prince P., 389.
 Powell W., exhibition of ethnological objects from New Britain and New Ireland, 332.
 Presents, 1, 73, 84, 102, 108, 129, 149, 224, 241, 331, 371, 423, 429, 430.
 President's Address, 440.
 Price, F. G. H., Camps on the Malvern Hills, 242, 319.
 — on the Romano-British Cemetery at Seaford, 130.
 — 137.
 Price, J. E. Chastleton Camp, 124.
 — on the Romano-British Cemetery at Seaford, 130.
 — 137.

R.

- Religious Beliefs and Practices in Melanesia, 261.
 Report of Council for 1880, 436

- Reviews:—Catalogue of the specimens illustrating the Osteology and Dentition of Vertebrated animals, recent and extinct, contained in the Museum of the Royal College of Surgeons, Part I, *Man*, 231.
 Early Man in Britain and his place in the Tertiary period, 232.
 Fossil Men and their modern representatives, 234.
 Folk-lore, Manners, Customs, and Languages of the South Australian Aborigines, 234.
 Die Ethnographisch - Anthropologische Abtheilung des Museum Godeffroy in Hamburg, 236.
 Who are the Scotch, 237.
 Manuel du Voyageur, 237.
 Aide Mémoire du Voyageur, 237.
 Smithsonian Contributions to Knowledge, vol. xxii, 363.
 Contributions to the History of the Development of the Human Race, 366.

- Roberts, C., 379, 388.
 Roget, J., 97, 100.
 Rolleston, Professor G., Report on Bones from Chastleton, 126.
 Rowbotham, J. F., on the Development of the Art of Music in Pre-historic Times, 380.
 — 388.
 Rudler, F. W., 432.
 Russia, Stone Implements in, 352.
 — Prehistoric Discoveries in, 358.

S.

- Schuster, A., 97, 98.
 Scythe-chariots, their alleged existence in Ancient Britain, 127.
 Seaford, Mr. F. G. Hilton Price and Mr. J. E. Price on the Romano-British Cemetery, 130.
 Smith, B. Woodd, 97.
 — W. G. 84, 432.
 Stephens, H. C., 1.
 Stone Age in Japan, Mr. J. Milne on the, 389.
 Stone Implements found in Algeria, 316.
 Stone Implements in South Russia, 352.

T.

- Tattooing, 468.
 Tennant, C. C., 374.

Thomson, Professor Allen, 174, 332.
 Topinard, P., on the Methods and Processes of Anthropometry, 212, 424.
 Tucker, A., 1.
 Tuckett, F. F., on a supposed diminution in the size of heads during the last quarter of a century, 431.
 Tuke, Dr. Hack, 98.
 Tyler, T., 430.
 Tylor, A., 99, 108, 137, 430, 432.
 Tylor, E. B., on the Origin of the Plough and Wheeled Carriage, 74.
 — on the alleged existence of Scythian chariots in Ancient Britain, 128.
 — Presidential Address, 440.
 — 128, 174, 332, 388, 430, 432.

V.

Vaux, W. S. W., 331.
 Visualised Numerals, Mr. F. Galton on, 85.

W.

Wake, C. S., Notes on the Polynesian Race, 109.
 — on the Origin of the Malagasy, 424.
 Walford, C., 20.
 Walhouse, M. J. 424, 432.
 Western Regions, Mr. A. Wylie on the, 20, 150.
 Westropp, H. M., on Jade Implements in Switzerland, 153, 359.
 Wheel-carriage, Mr. E. B. Tylor on its origin, 79.
 Wright, B. M., 1.
 Wylie, A., Notes on the Western Regions, 20, 150.

Y.

Yule, Colonel H., 96, 100.







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